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ROSE
GARDEN
PRIMER

by

EBER HOLMES



Roses lend themselves readily to home adornment

ROSE GARDEN PRIMER

By
EBER HOLMES



NEW YORK, N. Y.
A. T. DE LA MARE COMPANY, INC.
1930

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Dedication

TO

A. T. DE LA MARE *of New York City*

This book is dedicated as a token of appreciation of a
quarter century of friendship.

Mr. De La Mare was elected an honorary member of the New York Florists Club in 1929 in recognition of the completion of forty years of service to the horticultural profession. He was praised as a man of sterling character, unselfish modesty, journalistic genius, honesty of purpose, and as a patient and tireless worker. I believe that all these sayings are true and that Mr. De La Mare is entitled to great credit and respect for all that he has done for the gardeners of America through his numerous publications, which have always been of a high standard.

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Publisher's Foreword

THE rose, the queen and most beautiful of all flowers, is, through this book, we believe, brought more closely to the hearts of those of her admirers who, while they loved her from afar, did not realize that she could repay that affection many fold and at so slight an exertion.

There have been more words spoken and books written about the rose than any other fair flower; yet it seems the time has come when another book—a simple one—on her ladyship will not be amiss.

Thousands understand the rose and cultivate her with skill and understanding, but to tens of thousands who would also like to share that understanding—how to care for her—how to have her favor them with equal grace—she has been seemingly difficult of approach.

This volume has been written, then, for this great host by a veteran grower of roses these past forty years, and his endeavor has been to tell the story so clearly that no longer need there be any mystery as to how roses may be grown and flowered successfully by all, even to the rankest amateur; hence, the title, "The Rose Garden Primer."

A. T. DE LA MARE.

Author's Preface

THE "ROSE GARDEN PRIMER" has been written in an attempt to supply the insistent demand for a simple book, the contents of which would be easily understood by the amateur and serve as a faithful guide and mentor in his or her efforts to grow worth while roses.

The public is more easily interested when the information it seeks is given in the plainest terms. The American people are rose hungry; sales of rose plants are increasing rapidly. The great popularity of the rose has brought out many excellent books on the subject from the standpoint of the advanced amateur and the professional gardener, but these constitute a small percentage compared to the vast army of garden owners who desire to obtain the knowledge that will enable them to successfully undertake the culture of roses to satisfy their own pleasure to care for a small rose garden.

I can state from my own experience as a boy that roses are of comparatively easy culture, for, before I was fourteen years of age, I grew them successfully, and at that time I had had but little training and possessed no special knowledge of the subject. Indeed, if you are willing to care for such a garden, to observe closely and to follow what I here set before you, so doing will ensure your success. If your love for gardening enables you to grow any plants well you may quickly learn to grow roses successfully.

The reading of rose books is to be commended, even though some of them tend to rather confuse the timid beginner.

Experience is the best teacher and, as you work, you will learn which is really the better way. Success in horticulture depends on doing the right thing at the right time. Roses may be grown anywhere in North America if the same care is given them as is given to garden crops generally. While roses may be grown with little care, they nobly respond to every attention paid them. Some kinds even thrive fairly under adverse conditions. Opinions and tastes differ as to which are the best varieties; the best kind for you are the ones that you like best if they do well with you, no matter what others think or say. It is manifestly impossible to mention all the best; a few of the outstanding ones will be listed later. There are so many that do better with some people than with others in some localities, or in certain seasons, that we cannot condemn any variety offhand in an arbitrary manner.

As in all other undertakings there are definite reasons for success or failure. Some professional growers that I have known to be otherwise good business men have had the peculiar weakness of attributing results in plant growth to some one cause when there were many contributing causes to the same end.

We may generalize and yet be fairly accurate on this subject even in a country so large as North America, for the fundamentals of rose growing are the same everywhere. The differences are regional: some sections have hot, bright sunshine and little cold; others are complete opposites, with varying degrees of change. These differences will be discussed later on in the desire to make the book of value to as large a number of people as possible. Each section of the country has its peculiarities; the main question as to the rose is one of hardiness and vigor, and from this all other factors radiate.

To many people a rose is a rose; but a few years ago any red rose was a Jack Rose. Often substitution was practiced

when filling orders, but today a great change has taken place—dealers are generally far more reliable, the public is better informed and soon ceases to patronize any questionable merchant in any line of business.

There may be little that is new in this book. I have been a professional rose grower all my life, yet for months before starting this work I read much rose literature and was often discouraged in my reading when frequently encountering conflicting statements. I have tried to condense and state facts and hope that the reading of the ensuing chapters will help to a better understanding of the Queen of all flowers.

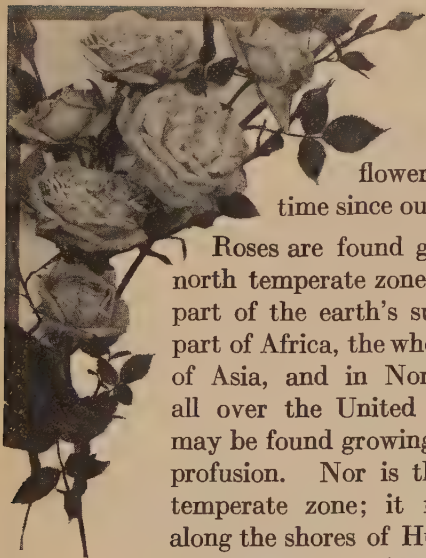
The American Rose Society is doing a great work for the rose and I would advise any one who wishes to advance beyond the primary stages of rose culture to join this society. You may obtain information about it from your nurseryman or florist. Dr. J. Horace McFarland, the able editor of the American Rose Society's Annual, which is free to members, is entitled to all praise for the vast amount of painstaking work that he has done. But while this society is doing wonderful work and has a membership of five thousand, this is not one-fiftieth of one per cent of the people in this great land who would like to have a few roses in their gardens, and it is for this army of flower lovers that this book was undertaken in the hope that it might prove of some help to the average citizen and rose lover.

EBER HOLMES

Halifax, Mass.
February, 1930

Chapter I

The Origin of Our Roses



THE rose is the most important commercially, the most interesting historically, and the most popular of all

flowers grown today or at any time since our civilization commenced.

Roses are found growing wild all over the north temperate zone, which includes a large part of the earth's surface. In the northern part of Africa, the whole of Europe, a great part of Asia, and in North America, practically all over the United States and Canada, roses may be found growing wild in greater or less profusion. Nor is the rose confined to the temperate zone; it may be found at home along the shores of Hudson Bay and the coast of Labrador, in Alaska, in Siberia, and at least one species, *Rosa acicularis* (Prickly Rose), in varying forms has been found growing well within the Arctic Circle both in North America and Asia, thus gaining the name of "the Circumpolar Rose." This is a low growing shrub with prickly foliage and pretty pink flowers and

may be found in many private rose gardens, as well as in the Arnold Arboretum and in municipal or public rose gardens in the United States, Canada, and Europe.

The noted arctic explorer, Donald B. MacMillan, lecturing in Brockton, Mass. on April 24, 1929, was quoted in the "Daily Enterprise" of that city as saying that "Greenland is gorgeous with flowers during the bright Summer." Pictures of a dozen varieties of roses were shown in their natural colors, and he informed his audience that these compared in coloring, size and beauty with those of his native Provincetown, Mass.

The reader may ask at this point: if roses are so hardy naturally, why is it that we find it difficult to make them live through our Winters? The answer is that of the hundreds of wild species (and authorities differ as to their number, placing them at anywhere between 50 and 5000 with at least 100 available for hybridization), only a very small number of these have been used, and that up to the closing years of the 19th century, these were varieties that were native to warm latitudes. About the year 1600, the Damask Rose was introduced into the western countries of Europe from Asia Minor. This was probably a development of wild species and its origin is unknown. This rose flowers twice yearly, and is largely used in the warm eastern European countries in the manufacture of attar of roses.

Between 1789 and 1810, and in 1824, the tender monthly China or Tea Roses were introduced from the warmer parts of China to these same lands of western Europe, and these, with *R. gallica* (French Rose), *R. centifolia* (Cabbage Rose), and *R. damascena* (Damask Rose), were the parents of practically all the roses that we had up to a few decades ago. It will be readily understood that the offspring of such parents would be tender and the marvel is that they proved



Double Rugosa

Dependably hardy, very vigorous and fine as a shrub or when used
as a hedge

so comparatively hardy. The first hybrid of record appeared in 1845, and was called *La Reine*; others were sent out in increasing numbers between that time and about 1890. These were called Hybrid Perpetuals, just why no one knows, but the name probably alludes to their long or perpetual life, for they are not perpetual flowering, being what are known as June roses, giving a great outburst of glorious bloom at that time but seldom flowering for the rest of the season.

It is worthy of note that some of the roses that were raised 75 years ago are still popular and among the best hardy roses that we have today. However, as the interest in roses grew, the demand arose for plants that would flower over a longer season, and so these Hybrid Perpetuals were crossed again with the tender Teas, giving us a new race that flowered more freely than the Hybrid Perpetuals and that were more hardy than the Teas; these were called Hybrid Teas. The first of these was named *La France*, and was sent out in 1867; this is still grown, and I remember a combination arrangement of *La France* roses with *Spiraea japonica* that was arranged forty years ago which struck me as one of the prettiest that I had seen up to that time.

These new Hybrid Teas soon became highly popular, so much so that raisers of new varieties turned their attention to them and in a large measure ceased raising the Hybrid Perpetuals. The Hybrid Teas are deservedly popular, some of them are of vigorous growth, with beautiful flowers; some are almost proof against disease, and are dependably hardy. They have an extended season of bloom and a wide range of color, being the aristocrats of the rose garden. These were surely a great advance, but up to the close of the 19th century the raisers of new varieties were still clinging to a small list of parent stocks. About this time, however, some of the hardy, strong growing species from Asia, as *Multiflora*, *Wichuraiana*, and *Rugosa*, became more widely



The Moss Rose

Moss Roses are always interesting and carry us back to days of old.

distributed, both in Europe and in America, and began to figure in the raising of new varieties.

The great awakening of interest in roses in America, and the demand for roses of greater hardiness, prompted our hybridizers to use these hardier species and, since the advent of the present century, great strides have been made, although the surface has only as yet been scratched. The future promises greater advances than have been accomplished in the past. Speaking rather broadly, it may be said that most of our Hybrid Perpetuals and Hybrid Tea Roses were either raised in Europe, or were raised here from existing European hybrids, while the greater portion of our climbing roses have been raised here at home by our own specialists. These are generally hardy, withstanding extreme heat and cold, and are most successfully grown in the colder parts of the United States and Canada.



Chapter II

The Rose in Early History

IT IS not known how long roses have been cultivated. We do know that our civilization commenced 7000 years ago in Northern Africa along the Nile valley where the wonderful Date Palm flourished and various grains were found, and in Western Asia, in the fertile valley between the two great rivers, the Tigris and the Euphrates. Here, where the wild wheat and the wild barley grew and food was abundant and easily procured, many roving bands were attracted to these rich lands, and an immense population sprang up, a part of whom had time to enjoy the finer things of life. The rose was probably the first flower to be cultivated in a double form for it is mentioned in the earlier writings. It was grown before history was written, for people do not leave written records until they have emerged a long way from barbarism to civilization. There is ample evidence that the many great and powerful peoples who inhabited these lands 5000 years ago built wonderful palaces for their rulers, and that the nobles and rich men had fine homes and gardens and that roses were cultivated in them.

The rose is mentioned in the Bible as being a favorite flower of the Jews; there are those who claim that the flower mentioned here was not the rose that we know today but some other flower, but this is a statement that cannot be proven, and there is as much evidence one way as the other. We know



Magna Charta

One of the old June roses, free flowering, easily grown and of a rather dwarf bushy habit. It is pink in color

that the people in these near Eastern lands had art and commerce and culture and that plants were introduced from one country to another at an early date.

Ancient mythology, more than 3000 years ago, makes much mention of the rose and it was even then called the queen of flowers. Among these legends we get the story of Cupid giving a rose to Harpocrates as a bribe to silence, and of how this gave rise to the custom of the tribes of suspending a rose from the ceiling of their council chambers to enjoin secrecy, and to this day this is reflected in our own lives. Before our friends tell us anything they do not wish us to repeat they say: "Now, this is sub rosa," and we remember the significance of "Under the Rose."

The early Greek poets sang the praises of the rose. At first this was done orally, and it was not until about the fifth century B. C. that history, as we know it, commenced to be written. One of the early Greek poets, Anacreon, whose poems are mostly of love, wine and roses, speaks of them; nearly every Greek writer between 500 and 300 B. C. mentions the rose, which was evidently a highly popular and much cultivated flower, being used both at the feasts of the living and on the graves of the dead.

Herodotus, the father of historians, in his writings which are supposed to give a description of observations of his travels, tells of seeing roses with a rich perfume and with 60 petals; this would indicate that the wild roses of those lands had been cultivated and improved at that time. During the golden age of Athenian democracy, when Herodotus lived in Athens as the friend of Pericles, when this leader, using money from the public treasury, was providing free admission to the theaters to those who asked for it, as well as paying out money in other ways, the idea of the Municipal Rose Garden, along with the public baths, that Athens possessed, does not seem so very far fetched. Although the Greeks were a frugal

people with unpretentious homes, they did have fine public institutions.

In Egypt, prior to and at the time of Cleopatra, roses were plentiful, and were used lavishly by this queen at her feasts. When Egypt became a Roman province the Egyptians sent roses to Rome in winter. This was like sending coals to Newcastle, as before the Christian era the Romans were cultivating roses. They discovered that these flowers could be grown in the Winter time in glass houses, which they heated with hot water, and the demand became so great that many large establishments came into existence to grow roses for cut flowers.

The Romans, unlike the frugal Greeks, were given to excess and extravagance, but they had their citizens who decried this practice. Notably, Cicero who impeached Verres; the latter was said to be too lavish in his use of roses, and in his appropriation of public money to his own use. Another notable citizen, Seneca, who was private tutor to Nero, was loud in his condemnation of all wasteful practices, especially that of producing roses in Winter, and it is worthy of note that this teacher had apparently so little influence on Nero, who was most extravagant and who is said to have spent what would probably be equal to \$150,000 today on roses alone for one of his feasts. We cannot make any comparison here as to how many roses this might mean, for in this age of mass production probably a thousand roses are produced "out of season," if we may use this term, where one was then; probably a few roses at that time cost considerable money.

After the fall of Rome and during the dark ages in Europe the early Christians cultivated roses and introduced the flowers into their ceremonies; the rosary or string of prayers being first formed of the hips or seed pods of these plants in the seventh century.



General Jacqueminot

Before America became rose conscious, any red rose was a Jack. This is one of the good old red Hybrid Perpetuals

During the eight crusades, 1096 to 1270, soldiers, on returning to the western countries of Europe, may have carried home some rose plants, but not until the year 1600 have we record of the Damask Rose being there introduced.

Regarding the protests of some Roman citizens against roses in Winter, it is interesting to note what Shakespeare says:

“At Christmas I no more desire a rose,
Than wish a snow in May’s new fangled mirth,
But like of each thing that in season grows.”

English literature abounds in legends and mention of the rose. The War of the Roses, one of the greatest military struggles of English history, was so called because the contending parties had as their emblem roses, white for the house of York, and red for their rivals of Lancaster.

The custom still prevails, among Englishmen of wearing a red rose on St. George’s Day in honor of the patron saint of their country. The rose has always been associated with progressive nations, and it is worthy to note that the Chinese whose civilization outdates ours, but stopped short, also, neglected to take up the culture of the rose, although they had the wild species to work with.



Chapter III

The Progress of Rose Culture

THE era of modern rose culture came into being nearly a century ago in England and has not changed fundamentally, although we in America have to modify our treatment to conform to a harsher climate and adopt different measures for the protection of tender roses as well as breed new and hardier varieties for our use.

Perhaps the most noted rosarian of this earlier period was the Reverend Dean Hole of Rochester Cathedral, England. This eminent gentleman happened to have been born in the same year that my father was and, as a boy, I heard him preach quite often; it was also my good fortune to meet him on several occasions when he visited the rector of our parish, the latter a lover of fruit trees, who spent his spare time pruning and working among them. The rector's wife was a real flower lover and had a good collection of rose bushes among which I was allowed to work off my youthful energy, receiving some helpful advice from the good Dean which I have never forgotten.

During the 19th century in Great Britain, many clergymen, poets, statesmen, professional and business men, were notable rose growers and rose lovers. A noted writer, Shirley Hibberd, was largely instrumental in making the rose popular through his writings in his "Floral World," and in the "Gardeners' Chronicle." Nor was this pastime confined to the upper classes of society; many working men practiced it—

**Agnes**

Considered the best of all the hybrid Rugosas. It is amber-yellow in color, fragrant to a marked degree and of ironclad hardiness

Photographed on the trial grounds of E. D. Smith & Sons, Winona, Ont., Canada

and still do. Near the district where I was born, there were coal miners who, though they spent much of their life underground, in their spare time went out into the hedgerows and dug up the wild roses, planted these in their gardens, and later would beg buds of the garden varieties from their richer neighbors to bud on to their wild stocks. These men were real rose lovers and worked hard and faithfully among their pets, and there was, and still exists to this day, great rivalry at the time of the numerous annual flower shows as well as much excitement over the award of the prizes.

There were and still are many noted rose growers and writers on the subject of rose growing whom space does not permit me to mention, mostly men, although some ladies were among the number of those actively engaged in the work. In this new era in America, especially since the garden club movement has made such growth, thousands of ladies are enrolled as rose lovers and growers. There are many advantages in joining these clubs, as in cooperative buying, in obtaining speakers on rose growing and kindred subjects, in exchange of information and in visiting noted gardens. Where a club gathers together there is always much instructive conversation that will be of value to you in your own efforts at rose growing.

There are now nearly thirty states in this country in which there is to be found at least one municipal rose garden; several of these states have two to three such gardens. The first of these was established in Elizabeth Park, Hartford, Conn. by Mr. Theodore Wirth when he was superintendent of parks there; upon taking a similar position in Minneapolis he performed a like service for that city by creating a rose garden there. Besides these, there are now noted rose gardens at St. Louis, in the Missouri Botanical Gardens; in the New York Botanical Gardens; and in the public parks of Boston,



Rose Marie

A light pink, delicately fragrant, that is good up to the end of the season. The habit of the plant is dwarf and good

Chicago, Cleveland, Birmingham, Portland (Oregon); also at the Walter Reed U. S. Army General Hospital in Washington, D. C.; the Texas Horticultural College Station; in Denver, Colorado; the Cornell Rose Test Garden at Ithaca, N. Y.; the National Rose Test Garden at Arlington Farm, near Washington, D. C.; and last, but not least, the large new rose garden which is a part of the public park system of Los Angeles, with its 17,000 plants in 140 varieties, an inspiration to all rose lovers, and which is said to have attracted more visitors than all the other features of that city's extensive park system. We can easily believe this for such public rose gardens are popular in every city where they are well planned, as so many of them are. There are also near many large cities some fine private rose gardens that are open to visitors, and thus there is everywhere a wonderful opportunity for all rose lovers to feast their eyes and increase their knowledge at varied points throughout the country.

It is hardly possible to estimate the value of these rose gardens to our citizens; the cost of making and upkeep is small compared to the pleasure they give to the multitude. Our modern methods of transportation make it possible for thousands of visitors to travel hundreds of miles to see them; these people become enthused and generally plant more bushes at home, or if they have none, they will make a start with a few of their own. There is much of health and pleasure in this occupation. There is a great love of roses among the people of all countries today, both rich and poor, and with our changed manner of living, when people have become so restless and so in need of quiet recreation, here is offered a good measure of pleasure and health at a small expense.

Chapter IV

Classification of the Rose

NO ATTEMPT will be made in these pages to give a definite classification of roses. Some of the present day varieties have been so interbred that it would be difficult to do this correctly. However, for garden purposes, roses may be grouped into two main divisions. First, the species and semi-wild varieties that will grow in indifferent soils with ordinary care—often with no care at all. Second, the hybrids of all descriptions which may be grown by almost anyone who is willing to work with them, who selects the varieties suitable to his environment and gives them the right treatment.

We can again subdivide these groups in many ways: first, as to their habit, beginning with the Wichuraianas and Briers, which trail or climb when support is available. Next the Baby Ramblers or Polyanthas, meaning many flowered. These give the maximum of blooms and pleasure with a minimum of care and expense. Then come the Teas and the Hybrid Teas, which are of varying heights, followed by the Hybrid Perpetuals, which usually are stronger than the ordinary bush Teas and Hybrid Teas. The Pernetianas are hybrids of the Hybrid Teas and the Austrian Briar; they are of the bush type. These are the main classes and are most in favor, the Hybrid Teas generally succeeding in all parts of the country. The Hybrid Teas are more or less ever-blooming, depending on their location and the treatment they receive, whereas the Hybrid Perpetuals are Summer bloomers, more or less.



Mrs. R. G. Sharman-Crawford

One of the good old, strong growing, pink-flowered Hybrid Perpetuals



Anna de Diesbach

A fine, pink flowered Hybrid Perpetual Rose

Then we have the taller bush roses, such as Hugonis, the Moss roses, Harison's Yellow, and the native species, as Setigera. We also have roses adapted to pillars, of which Mary Wallace is a good type. Lastly, there are the tall Climbers, which may be made to cover fences or even houses; these are sometimes seen climbing trees.

Hugonis is one of the finest plants imaginable; it may be used as a bush specimen on a lawn, in a massed shrubbery plantation or as a hedge. This rose is very hardy, living where the thermometer goes 20 degrees to 40 degrees below zero. It requires sunlight. It will stand a north exposure; it flowers early, being in full bloom about the middle of May, and is a welcome harbinger of Spring. It is always attractive; the large golden blooms resemble those of the Hollyhock, and the long, graceful shoots are covered with blossoms. The slender arching branches are clothed with acacia-like foliage of varying shades of green, while the new growth is maroon colored. This is the best of all the extra hardy yellow flowering roses and should be in every garden. It forces very easily and it may be brought into flower in a cool greenhouse by the middle of March.

Other divisions might be made indefinitely in the manner following. Some of the best are mentioned, but the reader must not infer that this is arbitrary, for some experts will object to certain varieties being given a place. Opinions and tastes differ, but generally speaking, the best for you are those you like and that do best with you. There is a great difference in the results that growers get with the same varieties in the same town. Most roses are good, but it is often a case of individual treatment. Many sorts do better in some sections than in others.

The following lists are, of necessity, incomplete, but are offered as a guide in selecting varieties that are most likely to succeed with the beginner.

DWARF POLYANTHAS, FAIRY OR BABY ROSES

These were originally hybrids of Multiflora or Chinensis, crossed with Hybrid Perpetuals. Of late they have shown more diversity, the newer ones being extremely free flowering, some being persistent bloomers. Some have glossy dark green foliage which they retain all Summer; others do not have such bold foliage, and have a tendency to lose much of it in Midsummer.

Among the best are:—

Gruss an Aachen. Multicolored, strong grower, constant bloomer with dark green foliage.

Orleans. Geranium red with white center, good habit, free flowering; good for bedding and massing.

Golden Salmon. Golden orange.

George Elgar. Soft yellow.

Mme. Cecile Brunner. Dainty, light pink, "The Sweetheart Rose."

Baby Tausendschön. Rose pink.

Echo. Light pink, sport of above.

Triomphe Orleanais. Double, bright salmon pink; dwarf; good habit; good foliage; persistent bloomer.

GOOD WHITE ROSES—HYBRID PERPETUALS

Those marked "a" are constant bloomers

aFrau Karl Druschki.
Margaret Dickson.

aMme. Albert Barbier (seedling
from Karl Druschki).

HYBRID TEAS

Two marked "x" are fragrant.

Louise Criner. Good in hot sun.

Marcia Stanhope.

Mme. Jules Bouche.

xMrs. H. R. Darlington.

xFlorence Pemberton.

Double White Killarney.

Kaiserin Augusta Victoria

TEAS

Two good varieties for the South

White Maman Cochet.

Mrs. Herbert Stevens.



Los Angeles

Produces long stemmed flowers; the buds are long and pointed; the flowers are large, fragrant, of perfect form and of a luminous flame-pink, toned with coral and shaded gold at the base of the petals



Lady Ashtown

One of the best pink flowered Hybrid Teas

GOOD PINK ROSES—HYBRID PERPETUALS

X—Fragrant. a—Fall bloomers up to late Fall

<i>x</i> Mrs. John Laing.	Capt. Christy.
<i>a</i> Georg Arends, "the pink Druschki."	<i>x</i> Paul Neyron.
Madame Gabriel Luizet	Anna de Diesbach
Baroness Rothschild	<i>x</i> Magna Charta.
	Mrs. R. G. Sharman-Crawford.

HYBRID TEAS

*X—Most fragrant. *—Extra good*

<i>x</i> *Pink Pearl.	Betty Uprichard.
<i>x</i> La France.	J. Otto Thilow.
Mme. Caroline Testout.	<i>x</i> Lady Dixon Hartland.
*Lady Ashtown.	Miss Rowena Thom.
*Frank W. Dunlop.	Mme. Second Weber.
*Lady Alice Stanley.	John Cook.
*Radiance	*Mrs. Charles Bell.
*Lady Ursula.	Mrs. H. S. Prentice Nichols.
Lady Mary Elizabeth.	Mrs. Wakefield Christie Miller.
Rapture.	Souv. de George Beckwith.
*Dame Edith Helen.	Una Wallace.
Mrs. Henry Bowles.	*Rose Marie.
Mrs. A. R. Barraclough.	<i>x</i> Queen of Fragrance.
<i>x</i> Elsie Beckwith.	Florence Pemberton.
Briarcliff.	Gorgeous.
Mme. Butterfly.	Willowmere.
Mrs. Henry Morse.	

GOOD RED ROSES—HYBRID PERPETUALS

Most red roses have some fragrance; those marked "x" have most

<i>x</i> Prince Camille de Rohan.	<i>x</i> Alfred Colomb.
<i>x</i> Hugh Dickson.	Gen'l Jacqueminot.
Gloire de Chedane-Guinois-seau.	Mme. Victor Verdier.
<i>x</i> Capt. Hayward.	<i>x</i> Marshall P. Wilder.
Ulrich Brunner.	<i>x</i> Fisher Holmes

HYBRID TEA ROSES

<i>x</i> Mary Countess of Ilchester.	Crimson Queen.
<i>x</i> Chateau de Clos Vougeot.	Dean Hole.
<i>x</i> Patience.	Mrs. Henry Winnett.
*Lord Charlemont.	Francis Scott Key.
*Etoile de Hollande.	<i>x</i> George Dickson.

HYBRID TEA ROSES—*Continued*

Sir David Davis.	Admiral Ward.
Royal Red.	Sensation.
Margaret McGredy.	John Russell.
Red Radiance.	Hoosier Beauty.
Hadley.	*Etoile de France.
Bloomfield Progress.	*xGeneral MacArthur.

GOOD ROSES WITH MULTICOLORED FLOWERS

Los Angeles.	Queen Alexandra.
Mme. Alex. Dreux.	Wilhelm Kordes.
Talisman.	Mrs. Lovell Swisher.
Mme. Edouard Herriot.	Imperial Potentate.
Mrs. Aaron Ward.	Independence Day.
Louise Catherine Breslau.	Betty Uprichard.
Padre.	Mrs. A. R. Barracclough.
Angele Pernet.	Wm. F. Dreer.
Isobel.	Souv. de Georges Pernet.

GOOD YELLOWS

Rev. F. Page Roberts.	Souv. de Claudius Pernet.
Lady Margaret Stewart.	Mme. Julien Potin.
Mrs. Erskine Pembroke Thom.	Ville de Paris.
Eldorado.	Frank Reader. Good in South.
Golden Emblem.	

GOOD STRONG GROWING ROSES

Willowmere.	Radiance.
Prince de Bulgarie.	Red Radiance.
Miss Cynthia Forde.	Mary Countess of Ilchester.
Gruss an Teplitz.	Lady Pierre.
Duchess of Wellington.	Jonkheer J. L. Mock.
Harry Kirk.	Mme. Caroline Testout.
Lady Ursula.	Dorothy Page Roberts.
Mrs. A. R. Waddell.	Betty.
Pharis er.	Mme. Charles Lutaud.
La Tosca.	Mrs. Arthur S. Coxhead.

ROSES THAT FLOWER UP TO COLD WEATHER

Mrs. Alfred Tate.	Lady Alice Stanley.
Gen'l MacArthur.	Mme. Segond Weber.
Mrs. A. R. Ward.	Rapture.
George C. Waud.	Red Letter Day.

ROSES THAT FLOWER UP TO COLD WEATHER—*Continued*

Butterfly.	Joseph A. Hill.
Ophelia.	Marquis de Sinety.
Georgious.	Laurent Carle.
Lady Ashtown.	Antoine Rivoire.

ROSES THAT WITHSTAND WET STORMS AND BAD WEATHER HYBRID PERPETUALS

Capt. Hayward.	Mrs. John Laing.
Hugh Dickson.	Baroness Rothschild.



Mevrouw G. A. Van Rossem

One of the most unique colored roses—large, golden yellow flowers with veins and reflex of reddish apricot. Vigorous growing and very floriferous, with good healthy foliage

Photo courtesy Bobbink & Atkins, Rutherford, N. J.

HYBRID TEAS

Los Angeles.	Pharisäer.
Mme. Abel. Chatenay.	Lady Ashtown.
Mme. Ravary.	Hoosier Beauty.
Ophelia.	Mrs. George Shawyer.
Gen'l MacArthur.	Rayon d'Or.
Richmond.	Louise Catherine Breslau.
Juliet.	Arthur Goodwin.
Betty.	Miss Lolita Armour.

ROSES GOOD IN THE HOT SUNSHINE

Red

Red Star.	Lord Charlemont.
Francis Scott Key.	Hadley.
Laurent Carle.	Etoile de Hollande.
Mary Countess of Ilchester.	Sensation.
Red Radiance.	

Pink

George C. Waud.	Briarcliff.
Rose Marie.	Miss Cynthia Forde.
Lady Ursula.	

Pink and Yellow and Various Shades

Betty Uprichard.	Sunburst.
Mme. Edouard Herriot.	Lady Hillingdon.
Golden Emblem.	Mrs. Aaron Ward.
	Rev. F. Page-Roberts.

White

Louise Criner.

ROSES GOOD FOR THE SOUTHERN STATES

Radiance.	Gruss an Teplitz.
Mme. Segond Weber.	Gen'l MacArthur.
Mme. Jules Bouche.	Duchess of Wellington.
Lady Alice Stanley.	Mrs. Erskine Pembroke Thom.
Mme. Caroline Testout.	Mme. Edouard Herriot.
La France.	Mrs. Aaron Ward.
Mme. Leon Pain.	Mrs. A. R. Waddell.
La Tosca.	Kaiserin Augusta Victoria.
Robert Huey.	Double White Killarney.
Robin Hood.	Francis Scott Key.

Climbing Roses

All the Climbing Noisettes; the Climbing Hybrid Teas; the Climbing Teas.

GOOD HARDY ROSES FOR NORTHERN SECTIONS

Hybrid Perpetuals

Capt. Hayward.	Frau Karl Druschki.
Georg Arends.	Paul Neyron.
Baroness Rothschild, Merveille de Lyon, "the White Baroness Rothschild."	Ulrich Brunner.
Margaret Dickson.	Mrs. John Laing.
Fisher Holmes.	Magna Charta and others among the old Hybrid Perpetuals.

Also many of the Hybrid Teas, Wichuraiana and its hybrids and briars for trailing on the ground.

All the Baby Polyanthas for very dwarf plants; the hardy shrub roses for large bushes; the hardy climbers for all climbing or pillar uses.

Good Hybrid Rugosas

- Conrad Ferdinand Meyer. Rampant grower; hundreds of silvery pink flowers. Very fine.
- Amelie Gravereaux. Dark purplish red; double.
- Nova Zembla. White, good companion for C. F. Meyer.
- Blanc Double de Coubert. Fine white, large and fragrant.
- F. J. Grootendorst. Vigorous, bright red; in clusters; good for a hedge.
- Hansa. Large, double reddish violet flowers.
- Roseaie de l'Hay. Large double, red to magenta; fragrant.
- Sir Thomas Lipton. White; double; fine foliage; free flowering.
- Agnes. Yellow, double, fragrant.

For roses good for climbers and pillars, see chapter on Varieties for all Purposes.

Fragrant Roses

In addition to the Teas, the Hybrid Teas and the Hybrid Perpetuals, climbing Teas and climbing Hybrid Teas, and Noisettes listed as fragrant roses, there are the species, as Banksia and Odorata; the hardy species and sub-species, as Centifolia, Gallica, Damascena and Rugosa; and our native Humilis and Virginiana. Among the hardy climbing roses with most fragrance are Birdie Blye, Reine Marie Henriette and Ards Rambler.



Mrs. John Laing

A Hybrid Perpetual that is very fine in June and that flowers again in the Fall. The blooms are large, pink and fragrant

Some roses have foliage that is fragrant; the most valuable are the Sweetbriers which are so delightful after a Summer shower. Of these Lord and Lady Penzance, Amy Robsart and Anne of Geierstein are highly fragrant; good flowering shrub roses like Persian Yellow and Harison's Yellow, have foliage possessing this odor to a marked extent. There is an indefinable quality about fragrance that, once learned, we can never forget; wherever it occurs it carries us back as long as our memory can reach, recalling days otherwise long forgotten.



Betty Uprichard

One of the best among the roses that have several shades of color. The blooms are of fair size and are sweetly perfumed. This variety does extremely well in hot, sunny climes

Favorite Roses

Below is given the most favored dozen garden roses from the American Rose Society's Annual for 1929. These are the choice of a great many members by vote:

Etoile de Hollande, brilliant red.	Mme. Edouard Herriot, orange-red and salmon.
Rev. F. Page-Roberts, yellow, stained red.	Mme. Butterfly, light pink.
Betty Uprichard, orange-carmine.	Mrs. Henry Morse, pink.
Souv. de Georges Pernet, orange-pink.	Mrs. Charles Bell, shell pink, shadings of soft salmon.
Lady Margaret Stewart, golden yellow, streaked with orange and red.	Radiance, rose-pink.
	Willowmere, rich pink.
	Mme. Jules Bouche, white.

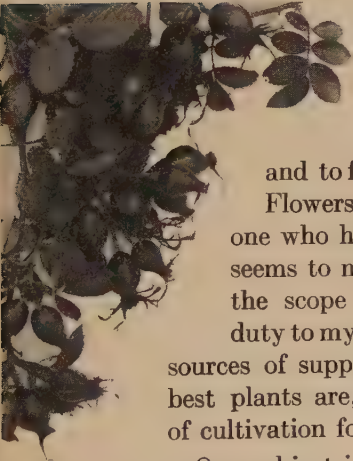
Old-fashioned favorite roses are the old Gloire de Dijon, buff pink, orange shadings; and Marechal Niel, deep golden yellow; the old Sweetbriers; the Musk, Moss, Cabbage and Cinnamon roses and Harison's Yellow; The Teas, Duchesse de Brabant, pale pink and flesh, favorite of Theodore Roosevelt; and others such as the Cochet; Perles de Jardins; Bon Silene; Souv. d'un Ami, Devoniensis, Niphetos, and others that belong to a past generation but still have their friends; Souv. de la Malmaison; Hermosa, bright pink; and many others, not forgetting the Queen of the Prairies and other old climbers such as White Felicity and Baltimore Belle.

Among the Baby roses we have the white Marie Pavie, and the pink Sweetheart rose, Cecile Brunner, long time favorites in my section.

These lists might all be lengthened but would be wearisome to the reader. The good roses are too numerous to be all included in the scope of this book.

Chapter V

Roses for Everyone



This seems to me to be an appropriate title to a chapter written in the attempt to make it more easy for the beginner to procure and to grow roses, and to further popularize the Queen of Flowers. If roses are to be for every one who has the desire to grow them, it seems to me that it would come within the scope of this book and within my duty to my readers to point out the cheaper sources of supply, as well as to tell what the best plants are, along with approved methods of cultivation for all roses, however obtained.

One subject in mind is the use of roses discarded from greenhouse benches by our large growers of roses under glass who supply the cut flower markets of the country. I am not trying to push the sale of these discarded roses, but I believe that many get their first start in this way and buy these who otherwise would not plant any roses at all. I also believe that once they have started they will want better plants in newer varieties and these they will buy from a reputable

dealer. Let there be no misunderstanding about this, for I know whereof I speak, my experience with the planting of such discarded stock going back nearly forty years when I first gave away such roses to the gardener in charge of a state hospital. Do not confuse such stock, however, with good, young budded nursery grown stock, which costs more and ought to be better, if it has been properly grown and handled, as it nearly always is.

The next experience with discarded roses from the greenhouse bench was when I supplied a friend in Rhode Island eighteen years ago, and over a period of several years. This business man had a hobby for growing roses and I have a letter before me in which he replies to my question as to his success with such stock. He wrote me about sixteen years ago: "The only variety that I do not seem to have any luck with outdoors is American Beauty. With the exceptions of Ramblers or Climbing roses, I prefer budded to own root stock. For fertilizer, I prefer cow manure. I protect the tender roses by hilling up the soil about them as high as possible. I have tried most of the commercial varieties of today and they all do well except American Beauty. I plant the Hybrid Teas eighteen inches apart in the row and the rows are two feet apart. The Hybrid Perpetuals ought to have more room, say two feet apart in the row and the rows three feet apart.

"Regarding bench plants (meaning discarded greenhouse roses) these have done first rate when the root system was perfect and the roots had not dried out before planting. Some of the best flowers I ever grew were from bench Kaisers which I received late in November and buried completely six inches deep during the Winter, then planted them in the Spring. When I plant, I dig trenches with a spade. If I have not given you what you want, let me know."

Here we have early evidence of the value of this stock, but let us come down to the past few years.

It has been our custom, when replanting rose houses, to give away a few of these discarded bushes to the workmen for planting around their cottages. Their success with such stock attracted the notice of their neighbors, all of whom wanted to buy, so we sold to them at a low price on the cash-and-carry plan. We have never offered these bushes for sale, and we have never advertised or tried in any way to push their sale, but the news has been so spread around from one friend to another during the past few years that people drive over fifty miles in May and June to buy this stock, all because their friends have shown them what they have done.

After the embargo on imported rose bushes went into effect a few years ago and bushes for planting became more scarce, these bench roses, which had previously in most cases been thrown away, were saved and put on the market. Now this worked out in the same way that everything else does that must be rehandled. An article may have little value at one time, or in a certain place, and at the source of supply may be bought at a low price, especially in season of bountiful harvest or in cases of overproduction. But the more it is handled, and the longer the freight or express haul, the more it usually costs. So that, shortly after the embargo, when rose bushes were in such demand, dealers bought these bench roses for resale.

This was legitimate but, after paying for the plants and adding the packing charges, the long haul, the rehandling and all other expenses, in combination with the loss of vitality from exposure to all conditions of weather, and the delay between digging from the bench and replanting into the ground, the situation was materially changed, so that these plants did not prove such a good buy after all.

Today, when American nurserymen are producing such fine home grown stock at a lower figure than formerly, due to improved methods of cultivation, there is no longer the pressing need of commercializing bench roses, the high cost of handling being out of proportion to the original value of the plants.

This is the reason why we prefer to sell to our neighbors. We simply cut off the tops, soak the roots and wrap in wet newspapers, selling during the period only when such discarded stock is available. This is far more satisfactory to us than packing for long distance shipment to dealers, while it gives our local people a chance to get a real bargain.

Lately, in the month of September, I was driving past a field adjoining a garden and a house occupied by a man employed by the United States Government in an important work, covering a large territory, and I was attracted by his bed of roses. I stopped the car and went over to see the bushes that he had bought from us the previous June. I observed here one plant which had twenty-five individual long shoots, each with a bud on top; many of the plants had twelve such shoots. Butterfly was the best of all, and this rose does exceedingly well in my locality (Halifax, Mass.) Apparently it stands harsh treatment and "comes back" more quickly than others.

Of this class of discarded stock, Columbia is good, Premier is fair; in fact, most of the greenhouse forcing roses do well, an exception being Souv. de Claudius Pernet, which is impatient of such treatment and resents being cut back and replanted in Midsummer.

Some time back a lady from an adjoining town bought two dozen of these bushes which she planted. On a September day I called on her and I saw in her living room two nice flowers of Butterfly and one of Columbia that had been cut from these

**Pink Radiance**

An extra good, pink flowered Hybrid Tea rose

plants. Of the twenty-four plants, twenty were alive and the only Winter protection they received was a slight covering of pine boughs in the Fall. The foregoing is only a part of this story.

This lady lives for the greater part of the year near Columbus, Georgia, coming occasionally to her Summer home in Massachusetts for but a few weeks. Last Spring she was anxious to try some of these roses in Georgia so in May we shipped her four dozen bench roses. This is the report she

gave me about them: "The bushes arrived on the twenty-first of May and were so well packed that the roots were still moist, consequently I did not soak them overnight, but planted them as soon as they were received. In three weeks after planting, I had roses on these bushes and when I left my Georgia home early in September, the plants were covered with flowers and buds. Angelus did remarkably well, as did Templar, in fact, all except the three plants of Souv. de Claudius Pernet, which died.

"Our soil is a heavy clay loam; we can get all the rotted manure we want, and so I had six inches of this spread on my ground and had it dug in and the ground forked over and broken up several times so that it was well mixed. We let it lie several weeks before receiving the roses. I used nitrate of soda with poor results, taking color out of the flowers and making them soft. We get but little frost here and only on two occasions did I see ice last Winter, and it disappeared in the forenoon. We get shade temperature of ninety-six degrees in Summer, with dry air, which makes it bearable. At times it clouds over about four p. m. and we get a heavy shower, after which it will clear and the next morning it will be fine again.

"Although we get no frost, there is a three months' rest; the leaves fall from the trees and the grass becomes brown, but in March the roses are in full leaf and we get flowers from April to December. We can plant roses all Winter. When I lived in Washington, D. C., Columbia and the red and pink Radiance were prominent in the public parks there. In Georgia the June roses predominate and, in their season, they flower for a few weeks. Everyone here seems to have the old Hybrid Perpetuals and similar types, with the result that there is a riot of flowers for a short time, and a dearth for the rest of the year. In the better class and more preten-

tious gardens, the Hybrid Teas are being grown more each year." I think the success of this lady was in a measure due to the rotted manure that was so thoroughly incorporated into her heavy soil, putting it in a good physical condition and improving its texture.

There are many farmers' wives and daughters who would find it easy to obtain plenty of good barnyard manure, and whose men folk are as desirous of improving their grounds and enjoying roses as they are. These people in many cases can buy discarded bench roses at first hand, for the trend of modern, large scale rose production is out in the open spaces and away from the thickly populated districts. Those who have the opportunity to buy these bushes for the price of ordinary bedding plants will find them well worth the money and a source of pleasure and satisfaction. I would not, however, plant these in a rose garden among new and choice varieties, or among the regular run of nursery grown stock in permanent beds. They have a place in the small garden where no other roses are grown. Anyone desiring a display in his rose garden that he does not wish to disturb, and who would like quantities of flowers to cut from late July to frost, might well buy any quantity of these that he has room for and can take care of; these to be planted by themselves for cut flowers. I noticed recently a bed of such plants that were set in rows three feet apart; the ground between the rows was covered with a paper mulch which was a success in that hot, dry Summer, judging by the appearance of the plants.

It may, on this showing, be safe to purchase discarded greenhouse stock from greenhouses near your home. Plants suffer from exposure after being dug from the ground unless they are properly handled and the roots protected from the sun and air. On the other hand, you can buy stock from a specialist 2000 miles away from your home and have them

arrive in better condition than other stock that might have traveled but a few miles. The difference would be in the way the plants were lifted and packed.

Rose plants should come to you with their roots intact; if any of the larger roots should be broken, cut them off cleanly above the break with a sharp knife or shears, but save the small, fibrous roots. If they arrive dry, soak the entire plant overnight in a tub of water. If the roots should be mouldy on being unpacked, which is possible in hot weather or when stock is delayed in shipment, lay them out on the ground and wash them thoroughly with a sharp stream from the hose, turning them over and cleaning them thoroughly. Then prune the roots, if they need it, and cut the tops down rather low, leaving three or four shoots, about six inches in length, on each bush and plant in the most careful manner.

Field Grown Roses

There are several large firms in this country who produce the bulk of nursery or field grown roses that are sold; mass production by experts, under the proper conditions, means better and cheaper stock for you.

It would not pay every nurseryman to bud the varieties in the quantities that he might be able to sell, but he can buy young budded stock in large lots and plant these out on his own grounds where they grow and increase in value. Here you should go and look them over several times yearly, especially during the height of the flowering season; you can judge for yourself the ones you want and have them delivered to your home at planting time in good condition, as well as having the pleasure of personally selecting your varieties.

When looking over the blocks of various kinds in a nursery, pay close attention to the general appearance of the plants, the habit of growth, the shape and color of the flowers, the freedom of bloom, or any other characteristics that may



Conrad F. Meyer

A hybrid Rugosa that is of wonderful growth. Plants have been seen with hundreds of flowers open at the one time

appeal to you, are points to consider. You will find the new varieties here, if your local nurseryman is a leader in his profession.

You may pay a little more for your roses from a good nurseryman, but fresh, clean, healthy stock is worth more. It costs more proportionately to pick out and label a dozen plants, one of a kind and true to name, than it does to handle plants in larger lots, and there is one thing always true and applicable to all who are willing to pay for a good thing, which is this: Recollection of quality remains long after the price is forgotten.

To return to the lower priced roses: Another source of supply is the greenhouse grown, own root stock such as is produced by some firms in large quantities, one such house claiming to send out about seven million plants annually. These are not generally so dependably hardy and useful as the nursery grown budded stock, but the fact that such quantities are sold is evidence of their usefulness in favored sections of the country, and at the price charged there is nothing to stop anyone from trying them out. They succeed best in moderate to warm climates and in lighter soils, and should not be planted too deeply nor pruned so hard as the stronger field grown stock.

To produce own root stock the young roses are planted from small pots on the greenhouse benches, in rows five or six inches apart, between January and April. These are kept pretty warm with sun heat, not so much fire heat being necessary. Roses and other plants will stand much more sun heat without ill effects such as would be the case with too much fire heat in cold, dark weather.

Cuttings are rooted as fast as the growth is made and potted into small pots in good soil, then repotted and well ripened in the Fall, and wintered in greenhouses in a low temper-

ature, and in some cases certain varieties are kept near the freezing point. Plants grown in this way are not high priced and many give good results. If they are grown on by the dealer for another year, for the purpose of making stronger plants, they are worth double the price charged the first year.

Over a large area of the United States and Canada it is considered best to plant roses in the Spring, but this is not arbitrary. Field grown roses may be planted in the Fall wherever the ground does not freeze before the end of November. In this case it is well, after planting, to hill up the soil around each bush and to leave it so until Spring.

Along the Western Coast from southern California up to British Columbia, Fall planting is favored and, all through this territory roses could be planted at almost any time during the Winter. The same is true of the Southeast, if we include the eastern half of Texas to the south, and take in the territory bounded by the Gulf of Mexico and the Atlantic Ocean, thence going west and north to include a part of Oklahoma, Missouri, Kentucky and Virginia. The nearer we approach the Atlantic Seaboard the farther north we can go in Fall planting.

There is nothing better than rotted cow manure for roses; where this cannot be obtained, other barnyard manure may be utilized, or a compost will serve the purpose if reinforced by bonemeal, superphosphate or other commercial fertilizers. It is now possible to buy dried and shredded cattle manure in bags from the seed or supply houses and this makes a good fertilizer. We have used pulverized sheep manure for many years.

The old time rules about pruning were very rigid but now that people do more of their own thinking, the best way is to observe what others are doing, to experiment for yourself, and to prune for the results you want to get. You must



Mme. Edouard Herriot

The "Daily Mail Rose," so called on account of winning that newspaper's prize offered for the best new rose shown at that time

prune hard when you first plant, the second year not so hard. With established plants, if you want fine flowers to cut with long stems, you must prune harder than if you want a large, spreading bush with quantities of smaller flowers. But you must always cut out all dead and diseased wood, which disfigures the plant and may eventually kill it, and you should prune to open up the bush to the sun and air and to allow any spray or dust to reach all the foliage. When pruning good wood, cut to just above a strong eye that is pointing outside; all shoots that cross each other should be removed.

Roses from Cuttings

Raising roses from cuttings taken from your own plants is an easy and inexpensive way to increase your stock. There are two methods, namely, by green shoots called soft wood, and by ripened growth, called hard wood cuttings. These latter may be obtained in the late Fall, after the leaves have fallen from the plants and before the wood freezes. The shoots selected are taken off and cut up into pieces five or six inches long, the upper cut being just above a bud. They are then tied in bundles with raffia and each kind is plainly labeled. They can be buried, tops down, in moist sand; later, they should be buried outdoors below danger of frost, or be placed in an ordinary root cellar over Winter. They should be planted in the open ground in late April or early May, leaving one or two eyes, or about one inch above ground, while the greater part of the wood is buried in the ground. Be careful in handling not to damage any callous or granulations that may have formed while the shoots were buried; it is from these granulations the roots are emitted. A hard wood cutting may be rooted by setting it in the ground in some preferred position, covering it with a fruit jar of a convenient size, making it a fairly airtight covering.

Soft wood cuttings are also rooted under fruit jars or in the manner described in the chapter on propagation. These cuttings are made from wood of the current season's growth, and the best wood is that which is not too soft nor yet too hard. The wood near the top of the shoot, just below the flower, makes the best cutting. As soon as the flower has faded, cut it off with a short stem, taking away only the portion at the neck where the leaves are small; the remaining wood near the top of the shoot will be in the right condition to root readily. If you go down too low, nearer the main stem, the wood may be too hard to use. The shoots are cut off and trimmed in the manner shown in illustration on page 111. The cuttings may be set in the ground close together but not touching each other, and protected from sun and wind. A one quart fruit jar will cover several cuttings. The ground should be dug and pulverized and sand added if the soil is heavy, but no manure should be mixed with soil for cuttings. In properly prepared ground, you can insert the cuttings by simply pushing the ends in the ground and pressing the soil firmly around them, but if the ground is hard you must use a dibble or pointed stick to make holes, otherwise you may tear the bottom of the cutting. Water when first planted, again later if the ground or the cuttings appear to be dry.

Friendly Roses

As this is a somewhat intimate chapter, perhaps we might take time to visit among a few of the friendly roses. Among the Climbers, American Pillar (a seedling of that great Rosarian, Dr. Van Fleet) is a hardy, vigorous, free blooming rose; the flowers remain on the plant for a long time and are produced in trusses six to nine inches in diameter with nearly one hundred individual flowers. These open about the middle of June. The single flowers are of large size with five or

six petals of a color which may be described as carmine, shading to white at the base. The effect in the earlier stages is of carmine and gold, the number and size of the stamens giving a yellow hue; later, as the flowers develop, the carmine changes to a beautiful shade of pink. During the later period of blooming the color becomes that of a soft peach blossom. The effect of a long row of American Pillar Roses is one to be remembered; the rich, dark green, glossy foliage, free from mildew is a perfect background for the pink flowers. This by many is considered the best of its class.

An exceptionally good climber is Dr. Van Fleet, with beautifully formed pale pink flowers of good size and semi-double; the growth is vigorous and free. The plant should not be pruned except to take out dead wood or to keep it within bounds. If allowed to grow naturally this makes a large bush with beautiful foliage.

Dr. Huey is of vigorous growth and upright habit, requiring little pruning. The flowers are of large size, dark crimson in color and come in giant clusters.

Paul's Scarlet Climber is similar in habit to Dr. Huey but grows taller; both these are slow to become established but are very fine. Paul's Scarlet is the truest red of all climbers, the medium sized, well shaped blooms being vivid scarlet. This variety requires little pruning beyond cutting out an occasional old cane.

Bess Lovett is of vigorous growth with handsome foliage; its bright red flowers are of large size; the flowers of Christine Wright are also of great size, sparkling pink in color and are produced early.

Three popular climbers are the well known Dorothy Perkins trio, pink, white and red. The red variety is Excelsa, with strong, wiry growth and large clusters of shining red flowers. The habit of these three is identical and all have



Dorothy Perkins

A pink climbing rose that is very largely grown and very popular. Makes a wonderful display on a house, on a fence, as a pillar rose or as a hedge.

double flowers. White Dorothy Perkins is not of such rampant growth as the Pink Dorothy or as the red, Excelsa, but it has large clusters of snowy white flowers. The Pink Dorothy has beautiful brilliant pink flowers.

Flower of Fairfield is almost everblooming with some growers; its bright red flowers are produced in clusters.

Aviator Bleriot has been called the best yellow climber but the prettiest effect I have seen is where it is used as a ground cover, especially around a small pool or fountain. Its buds are orange; the flowers are creamy in color and the foliage is handsome.

Emily Gray has many admirers; the beautiful hollylike foliage, the soft glowing yellow buds, and its large flowers, are cause for admiration; unfortunately it is not altogether hardy and needs protection in Winter.

The same is true of Silver Moon with its strikingly large, semi-double, pure white flowers with yellow centers. The growth of this rose is a little too rampant except where there is plenty of room.

Gardenia is one of our most satisfactory yellow flowered climbing roses with yellow buds and creamy flowers, and is of vigorous growth. You will notice that nearly all the yellow flowers fade and bleach out as they open.

Heart of Gold is of good habit of growth and flowers profusely. It has large, single, velvety, crimson flowers with golden stamens from which it derives its name. * * * Hiawatha is a striking single flowered climber of vigorous growth; its flowers, which come rather early, are of the brightest hue, a brilliant rose red with a white eye and with golden stamens. * * * Evangeline is a distinct variety and where it is well grown will arrest attention in any garden; it is of strong growth with luxuriant foliage which is bronze green on the tips of the new growth; the flowers, which are

borne in large clusters are white with pink tips and are deliciously fragrant. Evangeline is particularly suitable for arbors, pergolas, arches, trellises, or in large plantings in parkways.

A valuable yellow climber is Goldfinch; this rose is perfectly hardy; a vigorous grower with handsome foliage; its flowers are produced in handsome clusters.

Mrs. George C. Thomas flowers freely from June until October; the buds are orange, opening to a salmon pink, lighter in the center.

One of the Hybrid Rugosas, Conrad Ferdinand Meyer, makes a wonderful bush rose, it is very hardy, of extremely strong growth and with fine foliage of a dark glossy green color. This rose has been seen over six feet in height, one bush having at one time one hundred and fifty expanded flowers and innumerable buds. It is equally fine as a single bush specimen or massed where bold effects are desired.

It would be possible to continue at length a description of beautiful climbers and bush roses, but space fails me.

Dwarf Bush Roses

There are many suitable for various uses mentioned in the chapter on adaptability of roses. A few words on the low bush roses will end this chapter. Among the reds the lightest in color are Red Radiance and George C. Waud, and the darkest is Chateau de Clos Vougeot. This latter is not always vigorous; the growth is somewhat sprawling, while the flowers lose their color in the hot sun. * * * General MacArthur is a fine scarlet red that is without a rival except in intense sunlight. * * * Etoile de France is a cherry crimson, liking partial shade, with fragrant blooms; the best blooms are produced in the cooler weather. * * * If you can grow Francis Scott Key you have a large red rose with more petals



Gruss an Teplitz

The rose for everybody. Flowers are scarlet to crimson, very fragrant and freely produced. Not so good for cutting, but makes a fine bush or a hedge. Easily grown and always in bloom

than any other; this should not be planted too far North as it might fail to open properly, being so double; it is fragrant and very beautiful.

Gruss an Teplitz flowers from Spring to Fall and is a most popular red on this account. The individual flowers have little value for cutting but, planted in a mass or used as a hedge, the effect is both striking and pleasing. * * * Another fine red is Etoile de Hollande; the plant is slow to become established but it is a good grower and bears flowers of a glowing scarlet red with a satiny sheen, having a delicious perfume. The flowers that are borne toward the end of the season are of wonderful size; fine in the garden and beautiful when cut.

Among the pinks, Lady Alice Stanley is the personification of an ideal rose; it has form, substance, color and fragrance of bloom, combined with a good habit of growth.

Lady Ashtown is most hardy; it has shapely flowers of good color; it grows freely and uprightly and blooms constantly.

Of Ophelia and all her sports, (the greatest of these being Madame Butterfly) little need be said except that if you do not know them you should by all means become acquainted with them as soon as possible.

There are so many good roses among the two-toned and the vari-colored varieties that I can only mention a few. One of the newer sorts is Betty Uprichard, which is a marvel in the hot Southland, a combination of delicate salmon pink to glowing carmine with a suffusion of orange on a coppery sheen.

Willowmere is of fine habit, growing freely, with buds of coral red suffused with carmine, opening to a large full flower of a rich shrimp pink with various shadings.

Mrs. Aaron Ward has been popular for many years and is still a favorite; the Indian yellow flowers are small but are produced in profusion during the entire season.

A rose that is distinct in its copper tones is Louise Catherine Breslau; the flowers are of good size and open well and if its good qualities were better known it would be more widely planted. Talisman is a new rose of great merit and beauty and will become highly popular.

Good white roses are few in number. Mme. Jules Bouche makes a bushy plant and gives many perfectly formed blooms which are double and attractive although not so large as some others.

Double White Killarney is the main standby both as a garden rose and as an exhibition variety; it has long pointed buds of good form but, like all the Killarneys, it is subject to mildew. It is a free grower and a constant bloomer, * * * A few good whites are wanted in any garden of roses. Marcia Stanhope is one of the good new whites, having large, double white flowers, fine both in the bud or when the flower is fully open, and with a delightful fragrance unusual in white roses.

Among the yellows, Souvenir de Claudius Pernet is fine. The flowers on the strongest growths are liable to be deformed; where there are several buds on such shoots, if the largest one is broken off and the second bud allowed to develop, you will usually get a perfect flower of good form and color. This rose is at its best in the Fall when the foliage takes on Autumn tints. Golden Pernet, (Julian Potin) is recommended as a garden rose of good habit and with beautiful flowers.

Eldorado is a permanent yellow of good substance that keeps its color in the hottest weather, and has a notable fragrance. * * * Among the newer yellows, Ville de Paris is distinct; this rose is a rich buttercup yellow, retaining its



Frau Karl Druschki
The queen of all hardy white roses

color without any other shadings under all weather conditions. It is a free grower and a profuse bloomer, good for cutting as well as for garden effect.

Among the old Hybrid Perpetuals or June Roses, the Red General Jacqueminot is always popular. * * * Prince Camille de Rohan is noted for fragrance and its rich maroon tints. * * * Fisher Holmes is noted for its fine form. * * * George Dickson for its dark red flowers. J. B. Clark for its large, red flowers and its fine growth. Ulrich Brunner has almost thornless stems and bright cherry red or light crimson flowers.

Among good old pink flowered kinds, the large flowered Baroness Rothschild, Mrs. John Laing and Magna Charta are among the easiest to grow and are prolific. The best white in this class is Frau Karl Druschki, a queen among whites as regards hardiness and freedom of growth, often giving two crops yearly, beautiful but cold looking and without fragrance. The flowers are of the largest size and make a splendid effect among the warmer colors.

A new Hybrid Perpetual is Mme. Albert Barbier, which is a seedling from Druschki, inheriting the splendid qualities of growth and freedom of bloom from its parent; the long, well formed buds are pearly white, suffused with soft salmon and develop into large double flowers with a center of golden apricot.

The Hybrid Polyanthas have recently been enriched by two new singles which grow between two and three feet tall and are covered with a mass of large, long lasting and non-fading flowers throughout the season. These are Ellen Poulsen, a beautiful rose pink; Kirsten Poulsen, a bright scarlet. Another new baby rose is Golden Salmon, of strong growth with a rich golden orange coloring and perpetual flowering throughout the season.

The list I have here noted does not include all the good roses in any class, but it will serve to indicate the wide variety from which to select and give some hints as to what kinds may be obtained. The variety is greater now than ever and new kinds are constantly appearing.

A rose must have merit to retain its popularity and those that have stood the test of half a century and more are really well worth planting, always providing that they are of the type that you wish for your own use and in the class that succeeds in your locality. A few varieties of these roses are still grown commercially, in limited quantities, for old times' sake, or for sentimental reasons, but they are in the minority and are gradually being dropped by dealers and so becoming harder to obtain.



Chapter VI

Varieties for All Purposes

THE rose family is the largest, most varied and most adaptable of all our flowering plants or shrubs, and those who think of the rose only as a garden flower, or as a cut flower from the florist, are missing much of the joy of rose culture. If we choose the proper location for the different varieties we will always get satisfying results. Generally speaking, as regards latitude, one may say: "Teas for the South, Hybrid Teas for the Middle West, and Hybrid Perpetuals for the North," but we need not confine ourselves to these limitations.

We make rose gardens for beauty of effect, and in these we plant any of the choice hybrids, from the dwarf baby roses to the tallest climbers, using any arrangement we desire; the effect produced will reflect the taste or skill we possess. We must never plant wild roses in this formal garden; these are used for best results as an approach to the garden proper, as single specimens on the lawn, or informally among shrubbery, and in other ways.

These wild species fruit freely and abundantly; the hips or seed pods are decorative and interesting and provide food for birds throughout the Winter. Under the same general principle that these wild roses should not be given a place in the rose garden, the Hybrid Teas and the Hybrid Perpetuals should not be planted in the shrubbery border. The wild species are good for bordering the lawn or the garden;

they vary in height, habit and time of flowering. They may be found growing naturally in places where other plants are absent, often on rocky hillsides, along the edge of woods, in wet meadows, or in the sandy beach.

Visitors tell of roses growing among the rocks overhanging the Grand Canyon in Arizona. Most of the wild species will thrive in rather poor soil and, when their nature is studied, it will be seen that their uses are manifold. For covering banks, or as screens for unsightly places, the best effect may be produced by mixing several varieties, planting each one singly and allowing room for growth.

The *Wichuraiana* and the Scotch Briers are good on banks as they require almost no care and keep the soil from washing away. *Rose rugosa* and *R. humilis* may also be used for covering slopes and rocky ridges. Brier roses are extremely thorny, have a good root system and can easily take care of themselves. The taller growing among the wild roses are good for hedges, or as screens to hide unsightly objects. The Sweet Briers are well placed when mixed with the taller roses; these make dense bushes and should not be crowded; plant singly and at least two and up to four feet apart. They are good for sandy places and are worth growing for the delightful perfume of the young shoots, especially in showery weather, even should they have no other recommendation.

A Few of the Most Valuable Rose Species

Here are a few of the most valuable wild roses with their chief characteristics:

ROSA WICHURAIANA, native of Asia. White flowered, many leaflets, often nine, almost evergreen; one of the best ground covers.

NRIDA, native of North America. The Shining Foliaged Rose; dwarf bush, small reddish pink flowers; good for border or among rocks. Eighteen inches to two feet tall.



Wichuraiana

The Memorial Rose, fine for covering banks and rockeries. It has beautiful glossy foliage and is covered in late June with an abundance of white blossoms

BLANDA, native of North America. The Smooth Rose; a few soft prickles but no heavy thorns; small, bright pink flowers; earliest of our native roses to flower. In Winter its showy berries and deep red branches give a good effect; will grow in poor soil; fine for bordering drives or edge of woods; five feet tall.

VIRGINIANA, native of North America. *R. lucida* is the best of several forms; three to six feet, glossy foliage, pink flowers; of value as a shrub or in a hedge.

CAROLINA, native of North America. Synonym, *R. humilis*; three feet to six feet; commonest dwarf species; reddish pink flowers; makes a dense bush or hedge for roadside planting.

PALUSTRIS, native of North America. The Swamp Rose; eight feet; good in moist soil or for waterside planting; finely toothed leaflets; pink flowers.

SETIGERA, native of North America. The Prairie Rose, the only native rose that commonly has three leaflets, and our only native climbing rose; six feet as a bush, but will reach to ten feet in good soil. Pink; free flowering; makes a fine bush; one of the latest to flower. If planted mixed with multiflora makes a dense hedge or thicket, impassable by dogs or tramps, or a good screen to keep out any undesirable element. Useful to cover walls, rocks or tree stumps.

R. MULTIFLORA, native of Asia. Many-flowered, white climber; early; fifteen feet tall. Very popular for any covering or climbing purpose. Mixed with *Setigera* makes an effective barrier; very handsome when in bloom.

ROSA HUGONIS, native of Asia. Single yellow; 6 to 8 feet. Very early; harbinger of Spring; Desirable as a bush rose; graceful, with picturesque foliage.

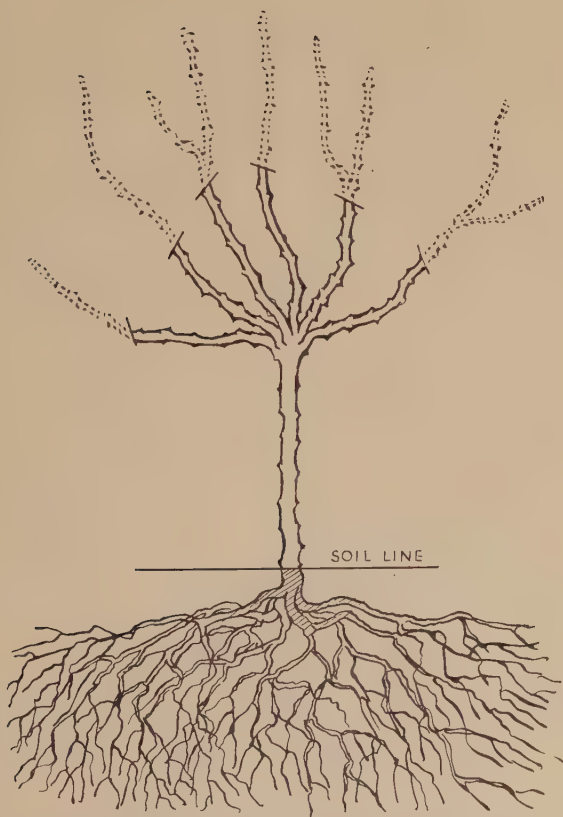
R. RUGOSA, the seashore rose of eastern Asia; rugose or wrinkled foliage, rich dark green; hardy and disease resisting; large single white, pink or red flowers; fragrant; large red or yellow seed pods. Foliage in Fall has orange or red tints. Most popular rose for shrubbery, hedges and foundation planting. Thorny. Good near the seashore. Will grow in poor soil.

There are many more wild species and kinds that have been naturalized than are here named, and there are many places where these might be utilized, but the foregoing give the best results.

Roses for Cut Flowers

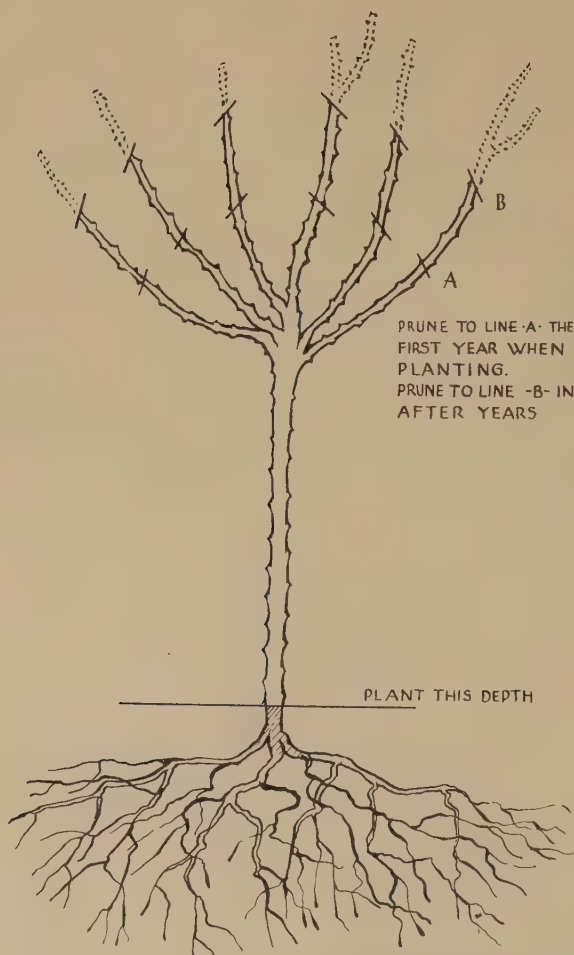
Roses for cut flowers may be in a plantation by themselves if there is room, and should the owner wish the flowers in the garden proper to be kept on the bushes for effect; in this case they should be removed as they fade, both for appearance sake and to encourage the plant to make new growth. Cut away enough of the old wood to balance the plant, but leave good plump eyes that will break out quickly into new shoots.

When we plan the garden proper we may have beds of any shape that pleases us; Baby roses in the foreground,



Standard rose bush showing planting and pruning. The stems of these standards are usually about four feet long

ROSE GARDEN PRIMER



Tall standard rose bush. Stem is from four feet six inches to six feet tall

the garden hybrids filling the main beds, with standards or tree roses effectively placed among the dwarfs. Around the outside of the garden, or inside in some cases, we may have festoons of roses made by setting stout posts in the ground and stringing heavy wire rather loosely. Tying the climbers to these, we may make arches, pergolas, fences, and use the hybrid climbers in many ways, including covering a Summer house in the garden. The old favorite, Gloire de Dijon, known all over the world, is fairly hardy if protected in Winter by banking the lower part with light loam and tying straw loosely around the upper part; this does best on Multiflora. Most of the climbers are beautiful in their flowering season and enhance the pleasure obtained from the rose garden.

Climbing Roses of Easy Culture

Among the hardy climbing roses of easy culture, we mention specifically: Dorothy Perkins, pink; and Excelsa, red. These are rampant growers, looking well on a wire or iron fence where they get free circulation of air. The white Dorothy Perkins is not quite so strong in growth as the pink variety. Others of importance are:

AMERICAN PILLAR. Large pink flowers with white eye; strong grower.

HEART OF GOLD. A red American Pillar.

GOLDFINCH. Small yellow flower, early and hardy.

DR. VAN FLEET. Flesh pink, strong grower; makes a fine bush rose if not pruned except to take out old wood.

EVANGELINE. A beautiful light pink, single flowered rose.

SILVER MOON. Large single white flower; rampant grower.

MARY LOVETT. The best double white.

GARDENIA. Strong growing yellow.

PAUL'S SCARLET. Fine, free blooming upright grower; splendid red.



Standard Rose

These are used with very fine effect among the dwarf bush roses

DR. HUEY. Dark crimson; upright grower. This rose and Paul's Scarlet make fine pillar roses; little pruning required.

AVIATOR BLERIOT. Yellow. Good as a ground cover, around the edge of a border, pool or fountain.

PROFESSOR C. L. SARGENT. Large flowered, yellow tinted; double; holds its color; good keeper on the bush or as a cut flower.

CHRISTINE WRIGHT. Pink.

ALIDA LOVETT. The best large flowered pink; large shining flowers; vigorous.

HIAWATHA. Rose red. Large single flowers with white eye.

FLOWER OF FAIRFIELD. Bright red flowers in clusters; long season of bloom.

BESS LOVETT. Early, large brilliant crimson flowers.

MRS. GEO. C. THOMAS. Pink.

AUNT HARRIET. Almost single, pretty and free flowering red.

There are other good ones that I have not space to mention, but this is a representative list of the best ones.

CLIMBERS GOOD FOR THE SOUTH

The Climbing Teas. The Climbing Noisettes.

The Climbing Hybrid Teas. Climbing Cecile Brunner.

Roses Good for Pillars

There are many roses which may be grown as pillars. In some localities strong growing kinds among the Hybrid Perpetuals or Hybrid Teas may be used, but usually the Climbers of an upright growing habit that do not grow too tall are preferred. The old and much abused Crimson Rambler was an ideal rose for this purpose, when well done, and if it had not become so common and so much abused it would still be seen more often than it is. It does not mildew so quickly and so badly out in the open ground when used as a pillar.

To hold Pillar Roses securely, drive a stake in the ground close to the plant and tie up the strong shoots to get the effect you want. Do not cut off the side shoots altogether,



Tausendschoen

Thousand Beauties is an appropriate name for this early flowering, popular rose. The large, delicate, soft pink flowers change on the reverse of the petals to carmine when fully expanded

for these produce the flowering wood for the following year. Each year, after flowering, the old canes are cut away and the best of the new shoots are tied up to form a new bush for the following year's flowering.

Among the best roses for this purpose are: Mary Wallace, rose pink; Paul's Scarlet Climber, red; Paul's Lemon Pillar, sulphur yellow; Dorothy Perkins, both the pink and white varieties; Excelsa, red; Hiawatha, single pink; Emily Gray, yellow; Dr. Huey, very dark crimson; American Pillar, large pink with white eye; Climbing Lady Ashtown, pink, H. T.

Roses as Large Shrubs or Bushes

Many of the climbing roses may be trained to shrub and bush form by driving four 6 ft. stakes into the ground, these to be about 18 inches apart at the base and tapering outward



Persian Yellow

A very hardy yellow rose of a deep color. Flowers are of medium size and are freely produced if the plant is pruned very sparingly or not at all

to a square about three feet across the top; these tops to be held in place by cross wires. Some varieties need no support; others may have the long growth tied to cross each other and be held in place that way.

Good shrub roses may be formed from Goldfinch, Mary Wallace, American Pillar, Dr. Van Fleet, Hiawatha, Ghislaine de Feligonde, the Rugosa Hybrids, *R. hugonis*, yellow; *Spinosissima*, "the Scotch rose"; Persian Yellow, Harrison's Yellow; *R. ecae*, *R. xanthina*, *R. xanthina normalis*, *R. lucida*, *R. setigera* and several others.

Many of the aforementioned have as long a season of bloom and are as hardy as the common shrubs, such as Hydrangeas and others. They require no more care and are far more beautiful in their season of bloom, while many have attractive foliage with decorative yellow or red seed pods in the Fall; others have colored stems in Winter, which give a pleasing effect. Roses might well be used in place of shrubs to a much greater extent than they are.

Arranging Cut Roses

Everyone is familiar with the adaptability of roses for cut flower arrangement on any scale; a single rose bud, in a tiny vase is as eloquent at times as a large mass of open flowers in a bowl.

In hot weather, cut your roses early in the morning, when half open and while fresh with dew. Use a sharp knife or shears or sharp scissors, making a clean cut. The blooms may be arranged at once in clean, cool water, or they may be placed deeply in water and left in a dark room until you are ready to arrange them.

Fragrant roses, fresh with dew, in a cool room on the breakfast table, help to start the day aright and have a pleasing effect. White roses make a cool looking dinner



Scotch Briar

These roses are very hardy and vigorous, well able to take care of themselves. They are unrivalled for all bankside planting

table in hot weather. Roses with fine foliage require no other green or trimming. The color selections are most effective when used as a part of the general color scheme; the more vivid the color the fewer are required. Bronze, salmon and yellow are good colors in a dark room. Yellow flowers are fine in a blue bowl; bronze flowers in a yellow bowl. Pale pink flowers are effective in a silver dish or a cut glass vase. Rose pink gives a pleasing effect with light blue. Use red roses for a gray or cream colored room.

Avoid crowding when arranging cut roses; let each flower stand out separately. It is effective at times to use a few shoots of red or yellow rose foliage among the cut flowers. Cut the roses with long stems, leaving a few good eyes or prominent buds on the plant. If the first crop of the Hybrid Perpetual Frau Karl Druschki is cut off, leaving longer stems on than is usual, it will give a second crop of flowers.

Many uses may be found for roses other than those mentioned, both as to the plant and the cut flowers. What greater pleasure can you have than in sharing their beauty with your friends, or in sending your flowers to some nearby hospital or sick person in your town. I can still remember when a boy my father sending me with a large hamper full of roses, several times weekly, to a flower mission. In our large cities, we see places in the railroad terminals where commuters may leave their flowers for distribution among people who seldom see them, and who can estimate the cheer that these may bring to many a weary soul and tired body? It is a great privilege that we have in this way to spread a bit of sunshine in the otherwise dark pathways of some lives.

Chapter VII

Making a Rose Garden

THERE are no secret treatments or practices to be observed in the growing of garden roses; it is an open book and he who runs may read. Expert knowledge is not a requirement but roses respond to good care. I have seen them flourishing under adverse conditions as to culture and climate, but to ensure the best results the soil in which they are to grow should be carefully prepared and generously fertilized. Roses are gross feeders and repay in growth and flowering according to the treatment given.

Essential Requirements

The essential features leading to success are soil, location, quality of stock planted and its adaptability to the situation; proper planting, and then the details of cultivation. Hybrid Perpetuals do best in a rather stiff loam. Teas and Hybrid Teas prefer a lighter soil. The hardy climbers of Multiflora and Wichuraiana origin are not particular as to soil provided it is reasonably good and sufficiently enriched for such rampant growth as they make. The wild species, described in another chapter, are easily accommodated, some in gravelly loam, and some in low, swampy ground, according to their natural habitat.

Location

The best location for a rose garden is one with an exposure to the southeast or to the southwest. It should be open and sunny, with protection from the prevailing strong winds and there should be no draughts, such as for instance may be found between houses on town lots; so avoid draughty places. Free open air otherwise is good. The morning sun is best for those who delight in getting up early and working in their garden, cutting the fresh roses while the dew is on them.

Roses make their growth between daybreak and the succeeding few hours thereafter; sometimes a growth of two inches has been recorded outdoors in one morning. I have measured a growth of four and a half inches under glass in a like period. You can easily measure the growth by placing a stick alongside a growing shoot and marking it each morning as the growth progresses. Sunshine is of benefit to this new growth and the early morning sun is the best; the air being less filled with impurities at that time renders the sunshine clearer than later on in the day. For those who prefer to stay in bed in the morning and cut their roses later in the day, a location for their roses where the morning sun will not strike them is preferable.

You may plant your roses wherever they will please you most, but do not plant them close to or under large trees and do not plant the hybrids in among the shrubbery or where too much alien growth will retard them.

If you have no other place, you can plant a few bushes in either the front or the back yard, or you can have hardy climbers against the front porch or over the back yard fence, as you prefer, providing you adhere to the rules outlined. A little shade for a part of the day is not harmful and at times is of benefit. The hot sun fades some flowers while, at times, with others, it intensifies and brings out the colors, adding to

their fragrance. Do not plant the garden varieties on wet or boggy ground or where the water lies too long before it drains away, or where water collects and freezes in the Winter time; if they live through such treatment they will be slow to start in the Spring and their growth will be checked.

Soils

/Roses are not arbitrary as to soil. They will thrive in many soils. There is no question but that roses will grow in any good garden soil provided the essential requirements are present. The average soil today in many of our towns and villages is not fertile, but by tilling and feeding, it will become capable of raising almost any crop that can be grown. Most soils are deficient in phosphorus and, to a somewhat lesser degree, in potash and nitrogen; if we supply these three in the required proportions, there is usually little else we need add in the shape of fertilizer.

Preparation of the Soil

The first step is to break up the soil and to mix in manure. Well rotted barnyard manure is good in that it adds humus to the soil and helps its mechanical condition. Manure makes the soil more friable, permits better aeration and makes it more retentive of moisture.

Manure opens up clay soils and compacts sandy ones. The soil by ferments is constantly changing and proper and sufficient fertilizing and tillage is necessary to get the best results, for when the soil is in good mechanical condition the roots can penetrate it more easily. In peaty soils and soils that are well supplied with humus, animal manures are not so important; if these have to be purchased at considerable cost it is doubtful if farmyard manure would prove an economical manure.

Soils may be built up or made anywhere, by anyone, but



Katharina Zeimet

A most useful little baby rose. Its pure white, double, fragrant flowers are freely produced

if soil has to be moved a distance or in quantity, this is costly work, and in most cases quite unnecessary. Humus from the woods, or muck from the swamps, mixed with sandy loam, if it is necessary, will answer the purpose without involving too much labor or cost. There is hardly anyone who cannot find a variety of soils near his home; in many cases one may find a sandy or gravelly loam and also a heavy loam, and sometimes a streak of clay in a field of but a few acres in extent. Clay soils for roses are richer than sandy ones; neither are as good alone as when mixed together or in conjunction with other suitable material.

Very light soils should have plenty of half rotted barnyard manure mixed with them; if such is unobtainable, use heavy clay loam, or peat from low land, or sod from a pasture, or loam from the woods, or any vegetable matter that will rot down. Clay soil may be treated with rough manure, sandy soil, humus, lime, wood ashes or coal ashes, if you have nothing else to lighten it up with.

Drainage

In preparing the ground the first thing to consider is drainage; usually this is the least of our worries, for where most roses are planted around our homes the ground is naturally dry and needs no special drainage.

However, the drainage must be ample in low places or where the rainfall is heavy, and if you must drain you should provide an outlet so that the water will escape to lower ground through tile, rocks, gravel, or whatever way you can best attain your end, but do not on any account dig out a deep hole and fill this in with rocks, gravel and loam and then plant your roses in this, for you would then have but simply created an undesirable reservoir for all the surface water to drain into.



Chas. P. Kilham

Large beautifully shaped blooms of brilliant red orange, suffused with glowing scarlet

Photo courtesy Bobbink & Atkins, Rutherford, N. J.

Making the Beds

If you have but a dozen plants or so you may dig out holes, eighteen inches square and eighteen inches deep, take out half the soil first and place by itself, then break up the bottom half, mixing in some half rotted manure; then fill in the hole with topsoil, reserving what is left for later use. In the top part mix in a half pound of bonemeal for each plant.

If you have enough plants to fill one or more beds you can dig out the soil to a depth of eighteen inches, placing the top soil to one side first, next take out the subsoil, then break up the hardpan, if such exists, to make better drainage if the ground drains naturally; or you may dig a little deeper and fill in with rough material for drainage if this is required. On rather high or level ground do not leave the surface of the bed any higher than the surrounding ground level or it will dry out too quickly; on low or naturally wet ground it may be well to leave it a few inches higher than the general level.

Some growers prepare their beds by digging out to a depth of eighteen inches, then spade a four-inch layer of cow manure into the bottom, then fill in the topsoil and afterward fill in the soil that was at the bottom, doing this in the Fall and leaving it to settle over Winter. One grower dug down two and a half feet, laid sods grass side down, then put on six inches of cow manure, then a mixture of good loam with bonemeal added. Others dig down two feet or more, following the same procedure as to removal of soils and loosening of the hard pan, and dig in eight inches to a foot of manure, forking it over until the whole mass is well mixed. If you have access to broken bones these are good to dig in among the lower part of the soil as they help the drainage and provide food as they decay, remaining in the ground for years. Good sod from a cow pasture is also used with success, laid grass side down at the bottom of the beds after excavating.

You can prepare the ground in the Fall if you wish and let it settle until Spring before planting, or prepare it in the Spring and plant in the Fall; in either case you can use fresh manure if you do not allow it to come in contact with the roots at planting time. If you are to plant as soon as the beds are made, break up the manure well and mix it thoroughly with the soil; if the ground is fairly dry tread it down evenly, but do not tread it down if wet.

The beds should be made of a convenient width so that you can work among the plants without treading down the soil too much. A bed three feet wide would be a suitable size for Hybrid Teas and these may be planted eighteen inches apart. Hybrid Perpetuals should have a bed four feet wide and be planted two feet apart. If you can only work from one side, the bed should not be over three feet wide; in cases where you can work from both sides, the bed should not be over five and a half feet wide for ease of operation and general well being of the plants. The condition of the plants will tell you when they need fertilizer. Plants well fertilized have large leaves of a dark green color; they grow vigorously and produce large flowers on good stems; starved plants needing food have light green or yellow foliage, they do not grow well and the flowers produced are few and poor in quality. If the ground is heavily manured at the start no further stimulant is required the first year after planting.

Ordering the Plants

Order your plants early and buy the best that you can afford. The first cost of the plants is not to be seriously considered compared to the results to be obtained; the recollection of quality remains long after the price is forgotten. Have your ground in condition so that you may be ready to plant as soon as the proper time arrives.



Chapter VIII

Planting Requirements

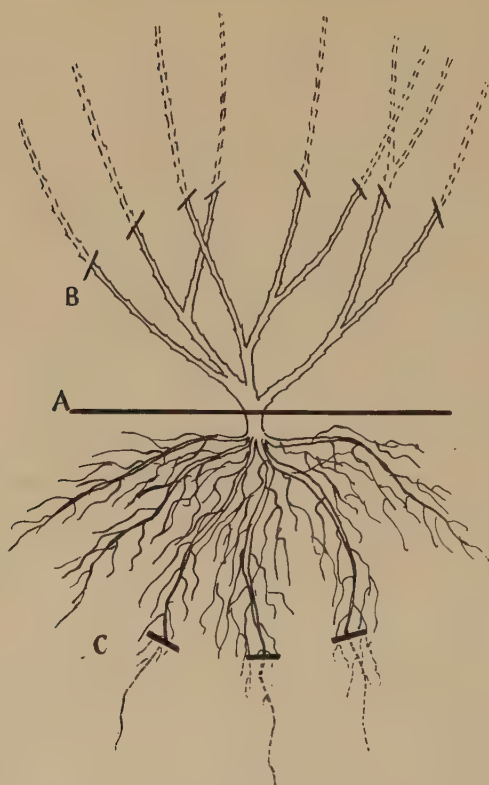
When to Plant

ROSES may be planted in the Spring or in the Fall; either time has advantages according to locality. Some growers prefer one time and some another; or they favor both according to conditions.

We will first consider Spring planting. If your plants come in before the weather is suitable for planting, you can lay the package or box on its side in a cool, dark place, where it will keep for a week or more; or you may unpack at once and, if the roots are dry, soak them in water and then bury them in the garden loam until the weather is fit to plant. Roses may be planted as soon as the ground can be worked; in the more northerly parts of the country Spring planting is considered best.

Roses should never be planted with dry roots; any large, damaged or broken roots should be cut off with a sharp knife, leaving on all the fibrous roots. The larger shoots should be pruned to six or eight inches, and the small, weak shoots cut out as shown on next page. The April rains are good for newly planted roses, and there is little fear of cold hurting dormant stock, but it is an advantage at times to spread a light litter among newly planted roses, so that in case of a sudden bad spell of weather accompanied by dry cold winds or frost, this litter may be quickly forked around the plants.

Planting may be continued up to May in favorable seasons, but late planted stock requires more care and watering,



A rose plant as received from the nurseryman
A—Depth to plant
B—Where to prune the top before planting
C—Large broken roots cut away before planting

and at times some protection from sun and wind. After the middle of May, roses may be planted from pots; these will soon become established and make a good growth. Pot plants are the best to use in cases where, for any reason, planting cannot be done in the early Spring. These may be also used to fill any holes in the beds or when you come to

a decision at the last minute to plant roses. These may be planted up at the end of the season; where they are planted after July you will not get much out of them the first year except farther south than the latitude of New England. Plants kept in pots too long become rootbound; in such cases the ball should be well soaked before the plant is taken from the pot, then prick the ball with a pointed hardwood stick to loosen it without tearing the roots; soak the ball again in a pail of water if it is dry before you plant it.

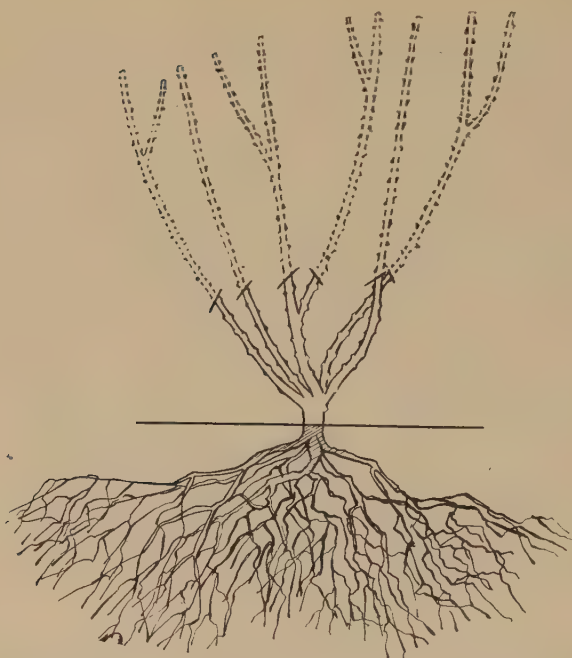
What Roses to Plant

American field grown budded plants are the best for all around purposes in our cooler climates; own root plants are good in the warm states but of little use in the colder ones except with some of the Hybrid Perpetuals, the Rugosas and the hardy climbers of Wichuraiana or Multiflora origin. Own root roses may be planted a little closer together than budded ones as they do not grow so vigorously.

Depth to Plant

In light loose soils, in warm locations, roses may be planted a little deeper than in cold heavy soils and when on Manetti stock a little deeper than when on Multiflora. The old advice to bury several inches below the union of stock and scion was good at one time when roses were low budded, but of late years we have seen great numbers of rose plants budded high; to plant these three inches below the graft would mean to bury the roots eight or nine inches; the rule is that the top roots should not be more than four inches below the surface of the ground. It is necessary to get the roots low enough so that they will not be disturbed when hoeing or be baked with the hot sun.

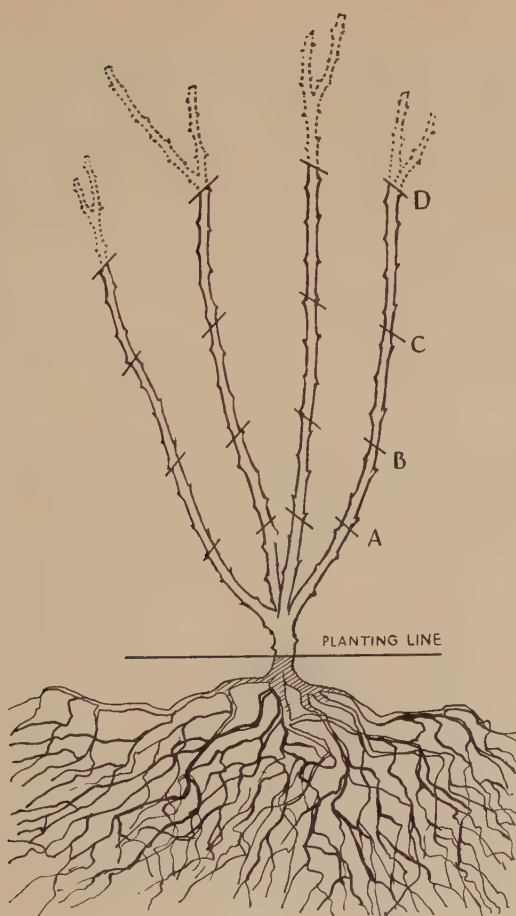
I have seen prize winning roses grown under glass in two inches of soil, and I have seen roses grown under glass near



A rose bush planted at the right depth with the roots spread out properly. Every space between the roots should be filled in with fine loam. When first planted the tops may be cut back hard to the cross lines, leaving each of the five shoots about six inches long

Philadelphia in pure sand and making just as vigorous a growth under these conditions as other beds in the house that were in the best of soil, but in both cases these plants were liberally fed and watered, and this method could not be carried out in outdoor growing.

The old argument that the budded part must be buried to prevent suckering need not concern us, for the plants sucker as much one way as the other unless the stock was

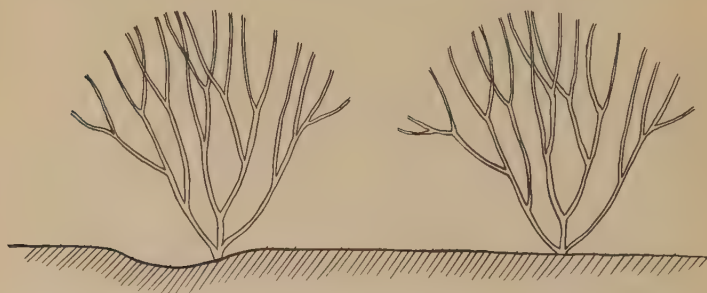


How to plant a dormant rose bush. Carefully fill in every space between the roots with fine soil and press down well. Prune hard to *A* when planting. In after years please yourself about pruning at *A*, *B*, *C* or *D*, according to your desire for a few large flowers or a quantity of blooms not quite so large

properly disbudded in the nursery. Neither is the statement correct that the union of stock and scion must be buried to prevent its drying, for millions of roses are grown under glass with the union exposed.

Another argument advanced is that if buried deeply, they will make roots of their own and thus have a double set of roots; this is a left-handed argument, for if they make roots of their own they often lose the understock roots, and we have then an own root plant; if this is what we want, why buy budded stock? Boiled down, the simple fact remains that in general practice a low budded plant with the union buried one or two inches means that the roots are at about the right depth.

Dig your holes large enough to allow the roots to be spread out horizontally, fill in some good loam among the roots press this down carefully through and around them, then fill in the hole and tread the soil down firmly, leaving a depression around each plant; after planting fill the hole around each plant with water and, if this escapes quickly, repeat the operation. After the water has drained away, hoe or rake the ground to level it, leaving a light mulch of loam



A—Shows depression left for watering after planting
B—Shows the soil after the final leveling

over the surface. Usually this is all the water they will require until growth has started, or unless the weather becomes hot and dry, when the operation of soaking around the roots and hoeing may be repeated.

A cloudy day without wind is best for planting, but if the conditions are reversed and there is a hot sun, it is well to place the bushes in a tub of water into which a few handfuls of clay or heavy loam has been stirred; this makes a film to cover the roots and protects them from drying while being planted.

Fall Planting

This should not be done too early; between Oct. 20th and Nov. 20th is a good time in the latitude of Boston and regions where weather conditions are somewhat similar. The advantages of Fall planting are that there is a better selection of stock, more time for planting, and the roots commence to work while the ground is warm and so are ready for an early Spring start. Fall planting is considered best by some growers in moderate sections. In the extreme north Spring planting is better. The plants are full of vitality in the Fall; if stored in sheds over Winter they are liable to lose some of this vitality. In Fall planting prune to within one foot of the ground and, as soon as the weather becomes cold with freezing weather imminent, hill up the soil to the tops of the plants. If you buy in the Fall and cannot, or do not wish to plant until Spring, you can bury the plants in light loam until that time arrives, but not in cold wet clay; then you may dig them up and plant at the first opportunity. Climbers may be planted in the Fall and have most of the canes left on them, allowing these to lie on the ground; in the Spring the strong shoots should be shortened and tied up; the small weak shoots to be cut out altogether. It is best

not to try for flowers on the Climbers the first year after planting if you consider the future well-being of the plants. All roses should be pruned rather hard the first Spring after planting.

Watering

Roses under dry weather conditions call for great quantities of water; without water the plants cannot grow or prosper no matter what else we may do to them. Moisture and air are necessary in the soil for growth of bacteria. With a warm temperature and the exclusion of strong sunlight from the soil by making use of a light mulch, conditions are favorable for the rapid multiplication of beneficial bacteria which promote the growth of the plants.

Up to a certain extent the more water the better; in a waterlogged and sour soil the air is excluded and harmful bacteria multiply rapidly. As strong sunlight kills bacteria, a light mulch, which does not exclude the air, is of benefit. Frequent hoeing is good; a dust mulch on top of the soil greatly conserves the moisture and does not exclude air and warmth. The degree of mulch required depends on the weather and the season as well as the latitude. During the growing season, cultivate after every heavy rain or cover the ground with half rotted manure. Other things good for covering are tobacco stems cut up fine and sold as a commercial preparation, or peat moss, buckwheat hulls, or grass clippings from the lawn.

Watering must be done freely in hot weather, because not only is much water absorbed by the plant but a greater amount is lost by evaporation. The leaves are the organs of absorption, assimilation and transpiration.

The plant uses up all it can assimilate and its capacity depends on the conditions provided which control its vitality. When watering is done it must be thoroughly done. If you

find by digging down that the under soil is dry, soak the ground thoroughly either with a sprinkler system or through holes made around each plant. Or dig trenches between the rows and fill these up with water until the ground is well soaked; when the water has drained down, hoe or rake it level again. Do not wet the surface only, or you encourage the roots to come to the top, where they are in the way when you cultivate and may be killed by the hot sun.

In extremely hot weather you may water at any time of the day; the hotter the weather in Midsummer the later in the day you can water. Watering will be more effective in the evening for less will be lost by evaporation. In cool weather and in the last half of the growing season do not water towards sunset, as the ground may be chilled and may cause black spot. In this connection it should be remembered that if the water supply comes from a deep well it may be twenty degrees colder than if supplied from a warm tank; this should be considered as governing soil temperature.

Watering and cultivating should be discontinued toward the end of the season. Nature cools the soil in Autumn, less moisture is taken up and stored by the roots; unused compounds are then being returned from the leaf cells to be used in building new growth after a rest.

Feeding

Three principles may be stated at the outset; these are:

1. A soil may contain an abundance of plant food and yet be almost barren of productivity if these substances exist as insoluble compounds.
2. A chemical analysis of the soil will show its potential rather than its actual fertility, as much of the plant food may be in an insoluble condition.

3. The fertility of the soil remains unchanged if all the ingredients taken out by the plants are given back to the soil.

It is difficult and expensive to change the texture of soils. In soil naturally well supplied with humus roses may be grown with chemical fertilizers only. There are many interlocking factors which make for soil fertility, as its mechanical texture and its physical, chemical, or biological condition. The texture of the soil may be improved by limestone; carbonate of lime is best in light and poor soils. For heavy soils and soils rich in organic matter, caustic or burned lime is more effective in decomposing organic matter and promoting nitrification.

The physical condition of soils may be improved by adding well decomposed barnyard manure; this makes the soil more friable, warmer, lighter and more easily cultivated. It also adds food as nitrogen, although the nitrogen contained is of inferior value to that in nitrate of soda or sulphate of ammonia, and also it becomes available more slowly. Barnyard manure is valuable as it increases the humus content, increases the absorptive power, makes clay soils porous and compacts sandy ones, but is of secondary value as a fertilizer.

A soil must be of a good mechanical texture to be fertile; good drainage is essential and it should be cultivated when not too dry nor too wet. Beneficial bacteria multiply very rapidly in well drained soils that are thoroughly cultivated and fully supplied with organic matter.

In preparing soils, green manuring is often practiced, where barnyard manure is not available, to add to the humus content. This method consists of sowing seeds of the clovers—sweet, crimson or red, rye, alfalfa, oats, buckwheat, soy beans or cow peas; when these crops are well grown and be-

fore they become ripe and dry they are plowed under. Sometimes more than one crop is plowed in. Where the growth is tall and heavy a chain is attached to the plow to break down the growth and lay it over so that it can be more easily turned under. The latitude of New England precludes the use of crimson clover, and red clover does not thrive on soils deficient in lime or on poorly drained soils.

Fertilizers

Barnyard manure lacks phosphorus more than potash; superphosphate, formerly called acid phosphate, mixed with this manure makes the cheapest source of plant food in any combination with animal manures. The phosphorus content in cow manure is low because the animals use up this element in making bone and milk. Poultry or pigeon manure is the strongest produced on the farm, and if acid phosphate is spread on the dropping boards after every cleaning and sprinkled on at regular intervals, the nitrogen is retained, otherwise much of this escapes in the form of ammonia.

Next in feeding value are the droppings of cow, sheep, horse and swine. Cow manure is best for roses as it lasts longer. Fresh horse manure will promote a more rapid growth but does not last so long. Fresh or green manure is not safe for the inexperienced grower to use as it may burn the plants and it is also not a balanced fertilizer, being too rich in nitrogen compared with other elements. Rotted manure contains less nitrogen, but the potash and phosphoric acid are available in relatively greater amounts. It is impossible to get too much phosphorus into the soil as it lasts and does not leach out, but it is not advisable to fertilize for more than one year ahead.

Vigorous growth is obtained by fertilizing early in the season. All the essentials must be present to get the best



Maman Cochet

A Tea rose that is famous for its sweet scented, full flowers of coral pink which are freely produced. There is also a white variety

results; these are warmth in the soil, water, aeration, drainage and a good mechanical condition of the soil. Phosphorus is necessary in all soils. In heavy soils, it adds growth by stimulating root action, produces longer stems and more and better flowers. It is more quickly available in superphosphate than in bonemeal, although the content may be slightly higher in the latter, the proportions being 18 per cent to 20 per cent to 16 per cent to 18 per cent of the former. Either may be used as a topdressing and raked in at the rate of eight to ten pounds to 100 square feet. Lime should never be mixed with either as the phosphoric acid is then rendered insoluble.

Potash

A good and safe source of potash is in unleached hardwood ashes. These may be used freely, fifteen pounds to 100 square feet, as they have a corrective influence upon the soil as well as a fertilizing value. They build up a growth fortified against the spores of mildew where they are used freely in the early growing season. Plant ashes contain in addition to potash, lime, soda, magnesia, oxides of lime and copper, as well as phosphoric, sulphuric and carbonic acids.

Sulphate of potash is a good source of potash, containing fifty per cent actual. Certain vegetable crops, as cabbages, cauliflowers or turnips, take 300 pounds actual, potash per acre out of the ground. Muriate of potash is not so good for most crops as sulphate, as it contains chlorine which kills grass and robs the land of lime. Nitrate of potash costs more than either of the former, but supplies nitrogen as well as potash and is good on peaty soils. Potash adds length to stem, hardens the stem, increases root development and improves the color of the flowers. Use in the early stages of growth, five pounds to 100 square feet; it combines with the soil and is lasting.

Nitrogenous Fertilizers

In addition to nitrogen in animal manures, it is obtained from nitrate of soda, fifteen per cent nitrogen; this is good on peaty soils; it must be used sparingly and is best crushed fine and mixed with powdered dry soil before application. This is a quick acting fertilizer and lasts for eight weeks. Sulphate of ammonia is good on warm soils or on those inclined to be alkaline; it is quick and lasting, combines with the soil and does not leach out and it contains eighteen per cent to twenty-five per cent nitrogen. Use sparingly and often as a top dressing. Nitrogen in the air is ever present in large quantities, and leguminous plants as peas, clover, etc., have the power of drawing their nitrogen supplies from the free nitrogen of the air not possessed by other plants, hence their value when plowed into the ground.

Dried blood is used for quick results and is more speedily available in warm soils. Apply any of these sparingly: three pounds to five pounds to 100 square feet of ground in the growing season to push out growth and make heavy green foliage. Not more than five per cent of nitrogen in a soil is ever present as nitrates; these are quickly assimilated by a crop.

A good mixture is one part of nitrate of soda and three parts superphosphate. Apply one trowel full to each plant every ten days in the growing season; or one part boneflour and two parts wood ashes, applied in the same way. Tankage is rather slow in action and may be used eight pounds to 100 square feet. Basic slag is good for roses on either peaty, clay, or sandy soils, and may be used rather freely ten to fifteen pounds to 100 square feet.

Indirect fertilizers are lime, marl or gypsum. All are of value when properly used. Lime unlocks the food elements in the soil; land lime is the best and safest form. It should not be mixed with manure that is spread out on the ground

or much of the food value of the manure is lost. If you have fresh manure that you wish to rot down or break up quickly, it may be mixed in a pile with lime and covered with loam. Do not use lime in soils notably deficient in phosphorus; use bonemeal or superphosphate.

Manure Watering

When plants are established you may use liquid manure. Procure a large barrel and a stout, coarse burlap bag; place about a bushel of fresh cow manure or horse manure, or half the quantity of sheep manure in the bag and tie with strong rope, leaving one end long enough to reach over the top of the barrel, where it may be anchored to a nail. Use the rope to shake the bag around, after the first lot of water has been used and it will be good for a second lot; the water can be dipped out and used, or a faucet can be placed in the bottom of the barrel. If the ground is very dry, water it first with clear water and then the liquid may be used full strength. Soot may also be put in a bag and used in the same way; this is mainly carbon in a finely divided condition and also contains small quantities of ammonium sulphate. It may be bought from the seed houses, or obtained from the home chimneys if soft coal is used, but the burned out scrapings from boiler flues are of no value.



Chapter IX

Spring Uncovering—Pruning— Winter Protection

SPRING UNCOVERING

It is not advisable to take off any of the Winter covering too early in the season, or to take it all off at once. An unusually warm spell may occur in March and, if you uncover the bushes then, they may start and the ensuing cold blasts will hurt them. If you leave them covered, the growth will be retarded so when it does start it will not be so likely to suffer from the vagaries of the weather.

The date to uncover cannot be fixed, and must vary with localities, but between the first taking off a part of the protection to the final uncovering and cleaning up of the beds, the period over the Middle States will extend from about March 20 to April 20.

We hear and read about winterkilling, but there is more danger in the Spring and more Spring killing occurs than Winter. The hot sun in March, with hard frost at night, and the alternate freezing and thawing of the wood, ruptures the bark, causing damage, so that a light covering which will admit air but shade slightly from the hot sun is of benefit. This alludes particularly to large climbers, standards and specimen plants, which require more care to bring through the Winter. The small, low bush type need not cause so much worry. If the covering has been more than ordinarily heavy, remove that part of it that will best admit air and still keep

out the sun or wet, freezing storms. After two weeks you can take off the remaining covering and, if the plants are large and have been laid on the ground, they may be left in this position for a few days before they are tied up into place again; a still, cloudy day is best for this work.

If leaves were used in the Fall for a covering, these may be carted away and made into a pile, kept moist, covered with a little loam, and turned over occasionally. This compost will eventually make good leafmold, which will be valuable in the garden. If manure was used between the rows of plants, it may be forked lightly into the ground. The loam that was hilled up to the plants may be levelled down so that at the finish it will stand a little higher than it was the year before; do this to allow for wearing and washing away.

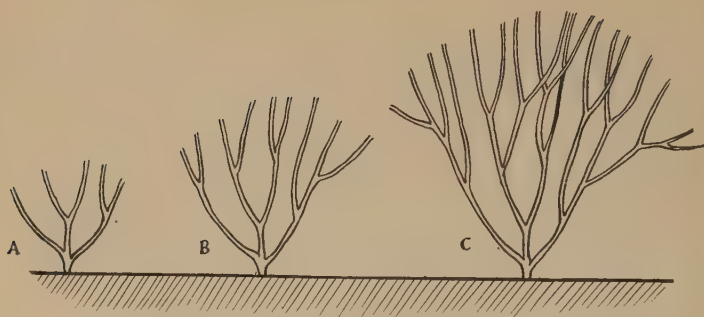
On the bush plants, the same rule about not taking away all the covering at once is a good one to follow. After bringing them through a hard Winter, it is a pity to let a careless method of uncovering damage them in the Spring time. When you have cleaned up and levelled the ground, a good heavy sprinkling of wood ashes or bonemeal, or both, will be of benefit, raked in around the plants.

PRUNING

Every advanced, enthusiastic amateur in rose culture has his own ideas on pruning. It is really one of the simplest operations when the fundamentals are understood.

The Time to Prune

The roses which require Spring pruning may be pruned about the time they are uncovered; if pruned too soon, however, early growth may be nipped by cold weather. A middle course is usually the better one. If you wait too long before pruning, some sap and effort have been wasted, but if you



- A—Shows hard pruning in the Spring to get a few extra large flowers on very long stems
B—Shows medium pruning for more flowers
C—Shows long pruning for the largest number of flowers, but the individual flowers are smaller. Cut out the dead wood to where the pith is white and cut out any shoots that are weak or that cross over each other

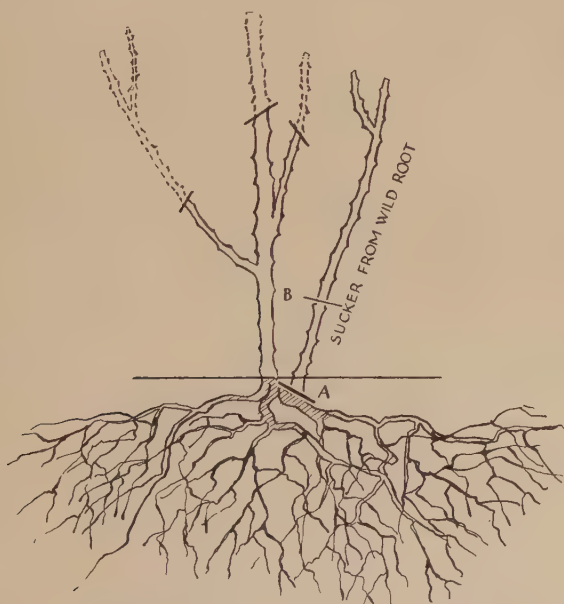
wish to prolong the flowering season you may prune the plants that start last rather hard, and as late in the Spring as you can. Generally speaking, there are two classes to be considered. The Hybrid Teas and the Hybrid Perpetuals, which may be pruned severely or otherwise, as the owner wishes; all other kinds call for but slight pruning.

How to Prune

This depends on the results desired. If you want low, compact bushes, with a limited number of fine flowers, you will cut to within a few inches of the ground. This will give you exhibition flowers. Some growers rub off some of the buds that start and allow only five shoots to a plant and, although you can grow very fine flowers in this way, this method is not much in favor. The ordinary grower wants an abundance of flowers, covering a longer season. Again, with so few flowers, should a part of these be destroyed by any agency, the loss will be more keenly felt.

SPRING UNCOVERING, PRUNING, PROTECTION 97

The middle course is the one usually adopted and that is to simply cut out all deadwood, shortening the live wood to about eight inches to twelve inches above the ground. This method will give a quantity of good flowers, and is the best system in small gardens where room is limited. In large, formal gardens, the general run of bush varieties, with special care, will become quite large, even in northern latitudes. If large roses can be safely carried through the Winter, there is almost no limit to the size to which they may be grown, if the pruning is limited to the removal of dead or useless wood.



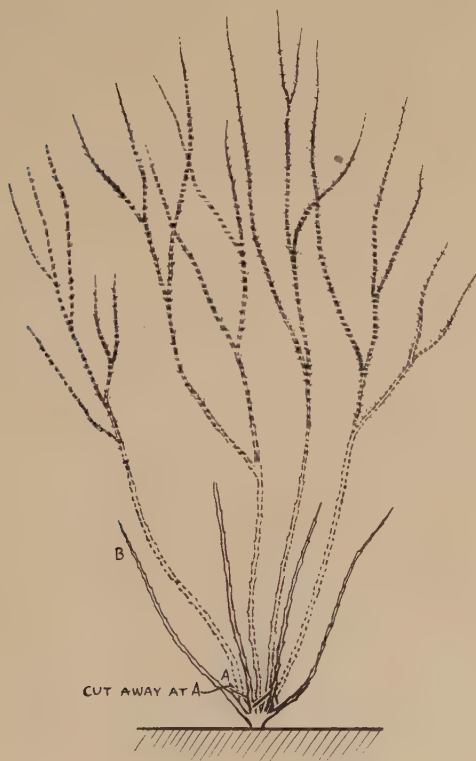
An example of long pruning. For hard pruning cut off the two small side shoots and the large middle one, as indicated by cross lines. Do not cut the sucker shoot off at B as it will grow again and stronger than before. Scrape away a little of the loam and cut the sucker off cleanly at A without cutting away the root

Always use a sharp knife or shears, cut out weak, twiggy wood or interfering shoots that cross the middle of the plant and prune as required the best placed and strongest shoots. Plants require individual treatment; weak growers should not be cut back so hard as the more vigorous sorts.

With vigorous bushes of good size in the Hybrid Tea and Hybrid Perpetual class, you can cut out the small, weak shoots altogether, and shorten back the strong shoots to about two inches above where they fork, or branch out. You should prune rather severely the first season after planting, or after an unusually severe Winter, prune until the pith shows white. Frozen wood shows brown pith. Roses of these classes require the same general pruning, whether grown as low or high bushes or as standards. In the latter case, the head is kept within bounds and of the proper shape by rather close pruning.

Tea Roses and those of the Brier type, including the so-called Pernetianas, do not require close pruning; in fact, they sometimes resent it. Briers usually flower at the tips of the wood. Some Hybrid Perpetuals, notably Frau Karl Druschki, will give two crops of flowers each Summer if the first crop is cut off as soon as the flowers fade, leaving the stems of good length, provided the plants are well cared for. The Baby type requires little pruning; cut out any weak shoots, dead wood, or old flower heads.

The hardy Ramblers of the Wichuraiana and Multiflora type should be pruned immediately after flowering; these are best kept within bounds by cutting out the old wood altogether and tying up the strong, new shoots that come up from the bottom, so that these may develop and ripen; for it is these that will give the flowers next year. Unless the old canes are cut away the plants may become a thicket of thorns and old, half-dead wood; in this condition it is hard to do anything with them.



Showing the old long canes on the hardy rambler, the oldest of which should be cut away close to the ground after they have flowered, as indicated by the cross lines at *A*

The four growths, *B*, are the new shoots from the base in June and July that should be encouraged to grow and ripen for next year's flowering.

Above applies to varieties like Dorothy Perkins, Excelsa, American Pillar and others of the type that throw up strong canes from the bottom every year.

Those varieties that do not throw up these strong canes from the bottom should be pruned sparingly after flowering. The climbing Hybrid Teas are pruned in the Spring, the short growths on the long shoots being trimmed back according to the effect desired. Rugosas may have their longest canes shortened back, or if these grow out of bounds they may be cut down to the ground when they will grow up again, but after that operation there will be few flowers the first year. A better way would be to cut out half the bush one year, the other half the next.

A general rule for all pruning is not to cut back any Roses after August, for a new growth starts that does not ripen and this may winterkill. The exception to this rule is the shortening back that may be given to Fall planted stock; or, after growth has ceased, the shortening of long shoots that may be broken by wind or snow.

WINTER PROTECTION

In ordinary cases all the protection needed for low bush roses is earth hilled up to the plants from eight inches to one foot in height. If you have but a few plants placed where you do not wish to dig, the better way is to carry a few pails of good loam for banking up purposes. Several hundred truckloads are used in this manner for covering in some of our larger rose gardens.

Earth Covering

If you have a plantation of roses that are in deep loam with the rows far enough part so that you can dig out the middle and bank up the bushes with the loam, this is a good method, for you can then fill in the trench thus made with a good compost of leaves, manure, vegetable refuse and loam that has been well mixed and is partly rotted down, to the

end that when you level the loam in the Spring this will make good fertilizer for the roses.

The best preparation for Winter is to have good plants which have made an early growth, that were kept clean, were ripened properly, and were growing in well drained soil that was in a moist condition when it was frozen at the approach of Winter.

Winter Moisture

It is important that there be sufficient moisture in the ground where roses are not protected for the evaporation is then much greater and too often the bare stems cannot get the moisture from the ground that they need. If properly covered and cared for in the late Fall, most roses may be successfully carried over Winter.

We occasionally find varying conditions, as where roses in Maryland winterkilled, while plants in Maine, that were



A rose bush with the soil hilled up to it for Winter protection

snowbound all Winter, came through in good shape. It has been well proven that steady, intense cold does not work as much harm as the sudden thawing and refreezing, for this lowers the vitality of the plant and often kills it. A soil covering holds back the plants and the somewhat later growth is not likely to be harmed by bad weather.

Leaf Covering

During the dry days in the Fall gather all the Oak leaves, or other leaves of hard wooded trees that you can get together and store these in a dry place until wanted. Other good covering material is coarse, strawy manure and marsh hay. If you have a few individual bushes around which you hilled with soil at the approach of frost and wish to cover further, you can place a screen of wire around each bush and fill in with leaves, covering the top with heavy burlap or tar paper to keep out the water; or you can cover with leaves and turn peach baskets, or other baskets of varying sizes, to fit the plants, fastening these down so that they will not blow away.

For larger plantings, after the hilled up soil is frozen, you may shake the dry leaves among the plants and cover these with strawy manure to prevent their being blown away or, better still, with marsh hay where this can be obtained. This makes a light, compact covering that does not blow away easily and sheds water to a good extent. Standard roses may be dug up, their branches laid down on the ground and covered; or they may be securely staked and a rough box made to board up the stem and head, this box to be filled with leaves or loam. The box should not be airtight but must keep the head of the plant dry.

Climbing Roses

Climbing roses sometimes suffer because the moisture has not been sufficient to reach the top on account of the bark on

the long stem becoming too dry, either from lack of water at the root or winds and sun shrivelling the bark. The hardy, climbing roses seldom need protection excepting in severe climates. Silver Moon, Dr. Van Fleet, and American Pillar all live with the writer without any protection, but they all die back somewhat from drying winds.

Less Hardy Kinds

If you wish to protect the more tender climbers take down the canes about December 1 and tie them in as compact a bundle as you can, first placing a cushion of earth where they are to lie; this will keep the branches out of the water and take the strain off the main stem, lessening the danger of breakage. The after treatment will also apply to all bushes of Hybrid Perpetuals or Hybrid Teas. If you have a good pile of leafmold on the place, take enough of this to cover the base of each plant and up to the bottom of the lower branches, then fill in with leaves and cover to keep dry or to prevent their blowing away. Stakes may be driven into the ground to tie down and hold in place strong shoots. Some growers use wire screens to hold the covering together, others use boards. To keep out the water, either burlap canvas, tar paper or boards are used.

The main considerations are to put the covering on dry, to keep out sun and water, to leave the ends open to admit air and to place poisoned wheat, oats, bran or similar material among the covering in a box, where it will keep dry, this to keep mice from eating the bark. Do not press the covering down hard, put in loosely and leave it that way. A light, loose covering is good; a heavy, wet one is harmful. In the extremely cold part of this county, some growers cover with twenty inches to two feet of loam and then further cover with strawy manure. Wherever the dry snow drifts into the plants and remains on them over the Winter, this affords a suitable protection.

Chapter X

Propagation

ROSES may be increased in several ways. In the first place, we have the wild species which are increased by seed; following this, all roses may be propagated by cuttings, or they may be grafted or budded onto strong growing stocks. If we want to increase the number of our garden roses, we can easily do so by any of the regular methods; but if we wish to raise a new variety we must resort to raising seed by crossing the kinds that we wish to work with. This is slow work and there is a long period of watchful waiting before the results show, and then you may not get anything worth while. Those who specialize in new varieties sow millions of seeds annually, but not more than a score of the new seedlings raised may be found to be worth marketing when the plants have been tried out. As it is now, far too many poor varieties are sent out. Capt. George C. Thomas, Jr., of Beverly Hills, California, has been quoted as saying that one year he planted over 1000 varieties and, later, threw away over 90 per cent of them as worthless.

While this is true, it is well to try out, under differing conditions, a new rose showing merit before discarding it, for good roses have been lost to cultivation in the elimination process. The amateur with a few varieties in his small garden needs the very best kinds obtainable and it may be told that the financial return to the raiser of new roses for outdoor growing is small. If the raiser could sell in quantity he might

do fairly well, but the general public is slow to buy until a rose has fully demonstrated its merits. If he sells a few hundred plants for five dollars each he has through this distribution surrendered his rights in a plant that may have taken him years to produce, as thereafter anyone can propagate it, at present there being no such thing as patenting a new plant.

The conditions are somewhat better with those who specialize in roses for growing under glass for cut flowers, the sales being more concentrated and are in larger quantities, some buyers taking 30,000 plants in one lot; there is more money to be made by selling by the thousand at fifty cents each than by selling single plants at \$2.50 each. However, these specialists raise thousands of seedlings before they get one worth while; the cost of growing under glass is higher and, when failures occur, the losses are greater, for 100,000 seeds may be sown and only one or two seedlings prove to be worth marketing.

It is more than a century since the first American climbers were developed; the Noisette climbers being sent out in 1816; Harison's Yellow followed in 1830. These were remarkably good and the latter remains in much favor today. But it was toward the close of the 19th century that the increasing popularity of roses and the need of American raised varieties for American conditions, prompted a number of our specialists to go at the work in earnest, and a new era was commenced when men like M. H. Walsh, W. A. Manda, Jackson Dawson, Dr. Van Fleet and others whose names will always be associated with this period, started their hybridizing efforts.

In the field as raisers of forcing roses for indoor cultivation, men like John Cook, just recently deceased at the age of 95, E. G. Hill and Alexander Montgomery were the pioneers and have many roses to their credit that are splendid

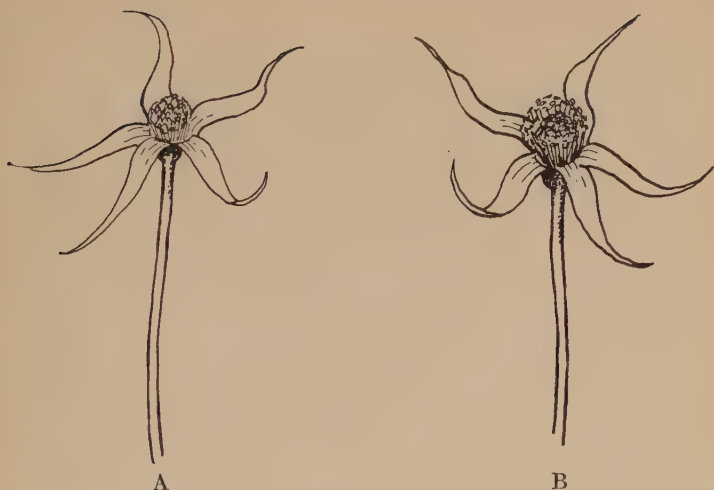
for outdoors as well as good for forcing, yet many of our best garden roses are worthless and unprofitable under forcing conditions under glass as far as winter flowering is concerned.

Raising Roses from Seed

This is interesting for the amateur who has skill and patience to undertake it. He will acquire experience as he goes along. If he has some good roses growing in his garden the expense will be nominal; all he needs is a small pair of sharp pointed scissors, a few labels for marking the crosses, and a notebook to record the results. He must not look for financial returns from his work, but he may get something worth adding to his garden in addition to the pleasure he finds in the occupation. He will get surprises; there is nothing sure in this work except that good parents are more likely to produce something worth while than are poor ones.

The beginner should confine his efforts to crosses between different varieties of the same species. If he tries to cross one species with another he is likely to be disappointed. For the seed bearers, select plants that have vigor, hardiness, are healthy and in good growth. If these have a number of shoots with buds on, cut away the poorer ones, leaving two or three of the best formed ones on each plant. The flowers to bear the pollen should be from plants that are of free growth and free flowering, bearing bloom of good shape, color and fragrance. The flowers selected for the cross should be in about the same stage of development.

The best time for the work is early in the season, on a warm day in still, dry air, in late May or June, so that the seed pods may have a chance to ripen early. When the flowers you have selected for seed bearers are about to bloom, you must start work early in the morning, as the



A—A flower bud with the stamens removed

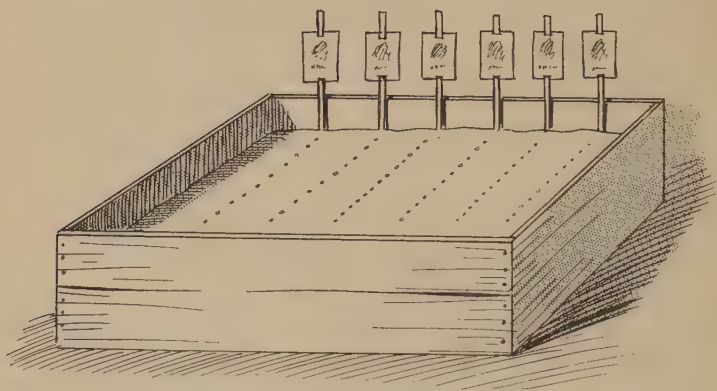
B—The pollen bearing parent

flowers are opening, before the sun ripens the pollen. If any flowers are already open you can pick away the petals one at a time. If they are not quite open, you can clip away the petals from each bud, about one-fourth of an inch above the tip of the ovary; then you can pick away the petals and clip off the stamens. If you carry a small box along you can save these stamens and, after drying in the sun, if there is a deposit of pollen in the box, you can transfer this with a small, fine camel's hair brush on to other flowers.

To return to the flowers under consideration: after clipping away the stamens without disturbing the pistils, cover each flower carefully with a small paper bag tied on to hold in place. Now go to the flowers that are to provide the

pollen and cut the best ones that are about to open; place these in a deep bowl of water, in a sunny window, where they will open and ripen the pollen by noon, which is the best time to work; by this time the prepared seed bearers will be ready. Then take the open flowers that you have cut, and either shake or brush off the pollen dust into a small glass jar; carry this to the garden and transfer with a fine camel's hair brush. Or carry the flowers out and, taking a flower in one hand, with the other pull back the petals so that the stamens stand out, and brush these stamens over the pistils of the flowers that you prepared earlier in the day.

If you are in doubt as to whether you have enough pollen from one flower you can use more pollen from others of the same variety, replacing the paper bag to prevent insect pollination. When the pollen is ready to use it will stick to the fingers. If you are to work on roses that bloom in



How seeds are sown in a wooden box or flat and method of labeling

Read from left to right when recording in your notebook. Set on dry ground and cover with a wire screen to protect from rodents. Frost will not hurt the seeds if you cover the boxes with eight inches of light loam over Winter

clusters, pollinate only one flower on each cluster and remove the others.

It will take several months for the seed pods to ripen; these will be yellow or dark red, according to the species. When the pods are fully ripe they should be gathered and, if earlier than Sept. 1st in the North, the pods may be broken open, the seeds picked out and sown thinly in flats in good garden soil, consisting of one-quarter sand and rotted leaf-mold; press the seeds down and cover with one-quarter inch of the loam, sifted fine; water and set in a sunny place.

Watchful Waiting

Some seeds may germinate in six weeks after sowing, others may take several years. If seeds do not germinate the first Fall they may be left outdoors, protected by wire netting laid on the flats, and then covered with loam so frost will not hurt them. If you cannot sow at once you may bury the seed pods in sand in a coldframe where mice cannot reach them. In the Spring take them out and break open. If dry you can soak the seeds for twenty-four hours in water; then sow them in flats outdoors, or give them an earlier start in the house if you have no greenhouse. Some growers use peat moss to sow the seeds in. The seed flats may be kept in a dark cellar before germination, but must have the light as soon as the seeds start.

At the time of the pollination be sure to label each cross by number, and record the parentage in your book under the same number, being sure to keep your record correctly as you continue to handle the seedlings. Many of the seedlings will give single flowers. In some instances the seedlings will flower when quite small, but this early flowering should not be encouraged and the buds should be picked off to build up the plant. Most of them will flower within a year and, as soon as they show merit, you can quickly increase the

stock by budding every vigorous eye that you can get on to a strong growing stock as described in the section on "Budding."

Propagation by Cuttings

Many roses may be raised from slips or cuttings—an operation that is hardly worth while with the Hybrid Teas and Hybrid Perpetuals, which generally grow better when budded. However, those kinds which are generally grown on their own roots, most notably the hardy climbers, may be easily increased by taking off the side shoots that have flowered, with a heel where they join the stem, trimming off the old flower head and taking off the bottom leaves. These are fit to use as soon as the flowers are dying, as the wood is then in about the right stage. Or you may take cuttings of half ripened wood from any clean side shoots in August.

If you do not use heel cuttings, cut the bottom off clean with a slanting cut just below a bud, always using a sharp knife. You can insert these cuttings in any well prepared and well drained soil. Dig up the ground and mix in a little sand or rotted leafmold if the ground is heavy; pulverize it well, and prepare as you would for a good seed bed. A rather shady place would be best. Firm down the bed, make holes with a pointed stick, set the cutting one-third way down in the hole and press the soil firmly around it. In some soils, with firm cuttings you can press the cuttings down into the ground without using a dibble. After the cuttings are inserted they should be well watered and, if the weather is hot and dry, they will need regular waterings. A cool, cloudy spell is the best time for this work and reduces the care required. If cuttings are watered too much they may rot; a light sprinkling on sunny mornings may be all that is required in many cases.

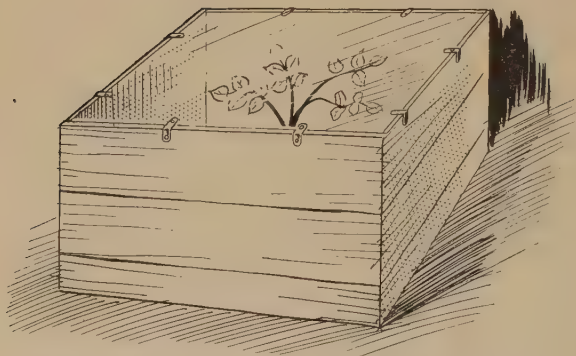


A—Shows a shoot of half ripened wood to be used as a cutting.
Cut off with a sharp knife at the top and bottom cross lines and take off the bottom leaves as shown at the black lines

B—A cutting inserted in the soil to make a new plant

Utilizing Old Hotbeds

Those who possess a small frame that was used as a hotbed the previous Spring will have an ideal place for rooting cuttings. Clean out weeds or rubbish, rake the bed



A simple box with a pane of glass over it, useful to root cuttings in. The box should not be airtight

over and cover with two inches of fine sand; water the bed well, then insert the cuttings; cover with the glass and tilt this to admit a little air—the quantity required will be regulated by the weather; if kept rather warm and close the cuttings will root quickly. I would not let the maximum temperature go over 75 degrees nor keep the cover on tight enough so that the moisture shows on the glass. If the glass was tilted to slope to the north, instead of to the south, where the sun is hotter, the frame would be cooler, or a light covering of burlap could be laid over the glass for the first two weeks or so to break the sun's rays, but not heavy enough to exclude light and air. The cuttings should be carefully watched and kept neither too dry nor too wet. When rooted, the glass or other covering may be removed altogether.

If in a place where surface water does not lie, they can remain over Winter with a covering of light litter; next

Spring they can be planted where they are to remain. If you reset them into a well prepared bed and give them enough space to grow, cultivating them well, you can get much finer plants by the second Spring, and these would be in a better condition to use.

Layering

About August 1st, when you cut out the old flowering wood from the climbers, you will find, in addition to the strong canes that have shot up from the bottom, a number of smaller canes that are lying on the ground. If you dig a small trench and lay these in and cover them with loam, they will make roots, after which they can be cut away from the parent plant and set out by themselves. This rooting is sometimes hastened by cutting half way through the shoot with a slanting cut where it is buried in the soil.

By Suckers

Some of the old garden roses, such as the Damask and Provence Hybrids, the Rugosas, Persian Yellow and others, throw up suckers at a distance from the plant; these can be dug up, have the top shortened back, and be planted out to form a new bush.

Root Cuttings

If you dig up a Rugosa bush you will sometimes note new plants spring up from pieces of old root that were left in the ground, and these, and others of the hardier kinds, may be propagated by digging out pieces of root and cutting up the larger of the branch roots, those that are about one-eighth of an inch thick, into three inch lengths. These may be laid out in flats (shallow boxes) into which a few inches of sandy loam have been pressed down; lay the pieces of root



Showing the method of layering. Note how roots have formed where the cut was made and the shoot pegged down. Cut away at *A* and *B* before digging up the newly rooted shoot to plant in its permanent quarters

out flat, in rows to fill the box, with a two-inch space between the rows; cover with damp sphagnum moss.

These flats may then be placed in a cool cellar or under the benches in a cool greenhouse, or any similar place away from frost, where they may be kept in a moist condition without getting too wet. Some of these pieces of old root will send out new white shoots, and in the Spring they may be set out in open ground, fairly close together, and grown along until they are ready to be placed in permanent quarters.

By Grafting

Grafting is not done to any appreciable extent with roses for outdoor growing, but is largely resorted to under glass with varieties that are to be forced indoors. Briefly, the method of grafting practiced is to use stocks with top averaging the thickness of a lead pencil. These stocks are potted into very small pots and placed in a cool greenhouse. As soon as they make a few roots and the tops are fresh, with buds swelling, the top is cut off as near to the pot as is possible and still leave room to work. A slanting cut is made on both stock and scion and, when possible, wood is used to fit the stock, but it is important that the inner bark fit together on one side at least. If you can find pieces of the wood that fit perfectly on both sides, so that the inner bark of both stock and scion match, you will have ideal conditions. This is not really necessary; if you get a perfect fit on one side it is enough. Some growers graft as soon as potted, preferring to let the plants root in the grafting case.

This is a tight box covered with glass, a miniature greenhouse inside a regular one. The box has steam pipes running under the bottom with the sides boarded in to hold the heat and valves to control the temperature. This is kept at 75 to 80 degrees. Many thousands of grafted plants are sold for greenhouse forcing. This has become a highly specialized industry, and today most growers of cut flowers buy their young plants from a few men rather than graft their own, as they can save time and money by so doing.

Budding

For the garden, budded roses have the preference. Budding roses is the easiest and cheapest way for the amateur to experiment with, as well as the best and most successful in general practice. Commercial growers who wish to rapidly

increase the number of salable plants of new varieties take every bud they can get, and work these on to stocks that are grown for this purpose. These stocks may be raised from cuttings or from seed.

The amateur can obtain a few plants of *Rosa manetti* or of *R. multiflora*, plant them in his garden, and take cuttings off these which, when rooted, may have buds of the kinds



Rosa manetti

of vigorous upright growth, and producing single or semi-double pink flowers. Commonly used as an understock for garden roses



Rosa multiflora, Japanese species

Commonly used as an understock for garden roses. One of the parents of many garden varieties, both low bush and climbing

he wants to raise inserted in them. Set these cuttings in a row, eight inches apart in the row. If there is to be more than one row the rows should be three feet apart; this will allow room to work among them. Or seeds of the Japanese multiflora may be sown early inside, in a flat, and the seedlings planted outside as soon as the weather permits in May. If these have been well grown, under favoring conditions, they will be large enough to bud in August.

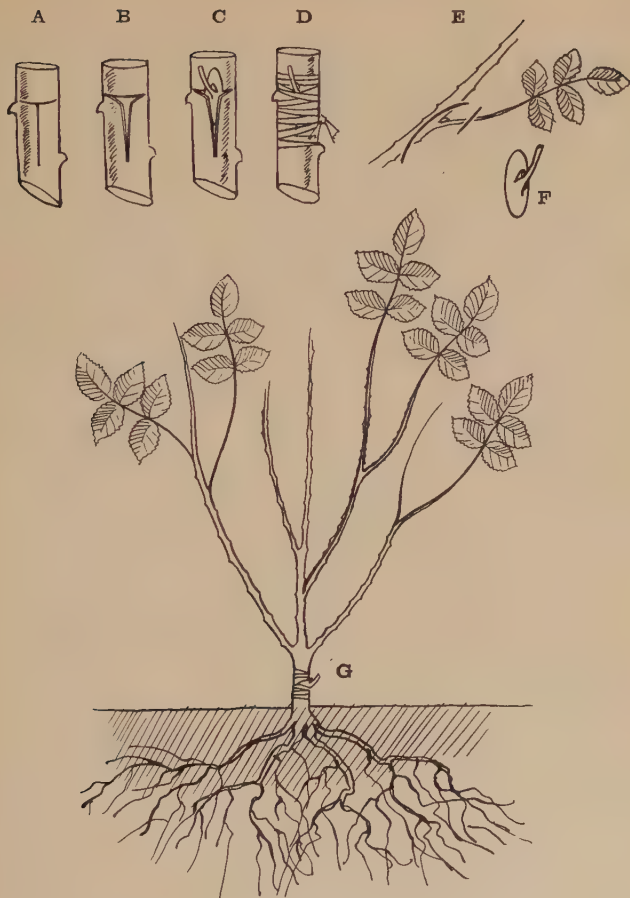
There will be less danger of suckers with seedlings than with cuttings if the bud is inserted in the right place, which

is between the first or lowest shoot and the roots. The best buds to use are the plump or fattest ones on the shoots that have just flowered, rejecting those at the bottom of the stem and the smallest near the top. Usually there are two or three good eyes or buds between these two points that stand out prominently, but shoots that have broken, that is, started to grow out, should not be used.

If the weather has been hot and dry, soak the stock plants thoroughly two days before you are to operate on them; if a rather cool, cloudy spell is in sight this is the best time for the work. When ready, clean away the soil from the stock plant so that the upper roots are exposed, wipe the stem clean, then at the point before mentioned, as low down as possible, and below the lowest side shoot or branch, make a **T**-shaped cut about one inch vertically and a quarter of an inch horizontally, taking care not to cut too much into the wood. (You must cut to the bottom of the bark without doing damage to the wood.)

Purchase a good budding knife at any seed store and it should be clean and as sharp as you can make it. Insert the thin handle of this budding knife into the slit at the top, separate the bark gently and carefully from the wood on both sides of the cut, going the full length and about one-quarter of an inch wide. If the bark does not readily separate it proves the wood is not in the right condition and you must wait until it is right, meanwhile soaking the roots again. You can now cut off the bud you intend to use, slicing it off with a thin scale of wood if it is young. In some cases the bud alone is sufficient, but do not cut into it; a small section of the leaf stalk may be left on for convenience in handling.

The bud is inserted by beginning at the top of the **T**, then gently sliding or pushing it down. If the lower part of the bark to which the bud is attached is trimmed **V**-shape it will slip into place more easily; if any of the bark projects



Budding

- A—T-shaped cut in bark
- B—Bark opened to admit bud
- C—Bud placed in position
- D—Bud tied with raffia
- E—Showing how to cut off a bud to be used on another bush
- F—A bud ready to insert in the stock plant
- G—A bud inserted in the proper place

above the cross cut it should be trimmed away. When the bud is in place fasten it by winding damp raffia or narrow adhesive tape around it; if the former is used it is cut into lengths of convenient size to wind around and the end is passed through on the last round, making a slip knot to hold it. The binding must be passed around so as not to cover the bud. The north side of the stock is considered best to work on, as the bud is better protected from the hot sun which might dry up the bud before it can unite.

A few weeks after budding, if the wood swells and appears to be bound too tightly, slit the tie so that it will relieve the pressure and gradually fall away. This would be especially necessary if tape was used. Raffia will often rot away naturally as the plant grows. If the bud does not live you can insert another one if conditions are right that season or wait until next year. Sometimes two buds are inserted at different points on one stock.

In the early Spring, if the bud has lived and shows signs of starting, the top of the stock should be cut off altogether with a clean cut, and the new shoot should be tied to a stake driven down into the ground for this purpose. The following Fall or the next Spring the plant may be set out in its permanent quarters. Any one wishing to raise roses in this way might practice budding by working with anything that came to hand, the way the boys peel the bark off willows to make whistles. It is a mechanical operation and some become expert at this work; if expert workmanship is combined with proper conditions it is one of the simplest operations of rose growing.

Chapter XI

Roses for Every State in the Union

THIS chapter will touch the high spots of rose culture in different sections of the country, and I am indebted to friends who have kindly supplied the notes on which this information is based. Those who wish more and detailed data should join the American Rose Society. This society has members all over the United States who will advise other members in their locality without charge; a list of such counsellors is furnished to members. Questions should be brief, on a type-written sheet with sufficient space below each question for the answer. Enclose stamped return envelope.

This society also publishes and distributes free to members a valuable year book (the Rose Annual), besides bulletins. The Rose Annuals alone are worth more than the cost of membership; there are some back numbers for sale, to members only, for two dollars each. These back numbers are offered to 1917, omitting the 1920 edition. These are liable to be sold out at any time. This offer gives new members a chance to catch up on a lot of useful information and to obtain the benefit of actual experience of reliable parties at first hand.

If you are new to your region you should visit the rose growers who are in within driving distance; they will be glad to give you any information they can. Rose lovers everywhere are generous and will help each other. It should be remembered that, although there are differences of climate

and degrees of temperature, the elementals are practically the same in all sections. The same remedies are used for insect pests, the same dusts or sprays for fungous diseases, the same rules apply as to drainage, enriching poor soil, and planting the varieties best suited to the soil and location. Such principles do not change with latitude or longitude.

Roses near the sea coast, not only in America but in other countries as well, are more liable to black spot and mildew than are those farther inland. But there are exceptions to every rule and such diseases may become troublesome anywhere. It is a fact that many of our best rose gardens are near the coastal regions. Roses may undoubtedly be grown near salt water and some will even flourish where the salt spray drives over them, or even where they may be at times inundated by salt water. Of course, these are extreme cases; on the other hand, we see wonderful roses growing in dry sections under brilliant and long continued sunshine, provided the soil has been well prepared and the plants are receiving sufficient root moisture.

Buffer states, like Kentucky, Missouri and Kansas, that are on the border between North and South, suffer at times from sudden and extreme changes of weather. The warm southern winds and sun will start the plants growing and then the cold north winds will swoop down with freezing weather and nip the growth. In these sections the stronger varieties among the Hybrid Teas may be successfully grown, also the Hybrid Perpetuals and the hardy Climbers.

Georgia

Farther south and to the eastward, in the northwest section of Georgia, there are heavy clay soils and sufficient cool weather to enable roses to be dormant for several months in the year. Planting is done here in late March. Hybrid



American Pillar

A very vigorous, hardy climbing rose with large, dark green foliage and wondrous bunches of large, single flowers of a lovely pink shade with a white eye and yellow stamens

Teas, Polyanthas and the Pillar and Climbing roses, like Paul's Scarlet, American Pillar, Dr. Huey, Dr. Van Fleet, Silver Moon, Evangeline and others, do well. To the south-east of this State, the season is earlier and planting is done in the Fall and early Winter. Tea Roses and Hybrid Teas do well here, and so do many of the Climbers. Established plants are fertilized in January and February, and the flowering season is in April and May. The ground must be well prepared to provide a cool bottom; feeding is necessary, also plenty of water during the growing season; the soil must be either mulched or be kept well cultivated to prevent baking of the ground in the hot sun.

Florida

Farther south lies Florida with an area of 58,000 square miles and a length from north to south of around 300 miles. Toward the northern to middle section, Teas, Hybrid Teas, Polyanthas and tender Climbers are grown, also a few Hybrid Perpetuals. The latter are not favored as their flowering season is too brief, the exception being Frau Karl Druschki, which will flower almost continuously here; in point of fact, as far north as Massachusetts, this rose will give two good crops every Summer with many growers. Budded roses are preferred to own roots as they last longer and give more flowers. Manetti and Multiflora are the favored root stocks here.

From the central to the southern part of Florida, planting is done in the Fall and early Winter. In light soils with ample drainage, rather deep planting is advocated to protect the roots from the hot sun which beats down so fiercely. There are modifying effects on account of the ocean breezes which favor this section; then again, in the latitude of southern Florida the sun is not above the horizon so long as it is

farther north, giving the soil a chance to cool a little in the night.

The soils are generally light and dry quickly. The ground must be well prepared and well drained where the rainfall is heavy. Where the soil is poor, it must be enriched. After being set into the ground, the plants must be well cultivated or mulched and liberally watered, the ground soaked thoroughly and the hoe used frequently unless the ground is covered with a mulch. Roses grow to perfection here when the grower has selected the proper varieties, the right soil and location, has planted well, and given good after care.

Where liberal feeding is practical remarkable results are obtained. Roses here should be planted farther apart than in colder climates, as the growth is more rampant. The Teas and Climbing Teas, China Roses, Bourbons, Climbing Noisettes and Polyanthas do best in the South. Hybrid Teas and almost any variety flourishes; those that flower only once yearly are not worth considering. Many of the Hybrid Teas are good, but where growing continuously their life is shortened; when plants have no natural season of rest they do not last so long.

Planting may be done from November to March; December is considered the best month. There is no dormant season, and as the plants grow and flower the year around, there is no severe pruning; such pruning as is necessary must be carefully and thoroughly done. It consists of trimming out weak or blind wood, stubby growth and old flower stems. Where the flowers are cut with long stems no heading back is required. This light pruning is done every six or eight weeks, between each growth cycle; fertilizer is applied at such times. Details of culture must be attended to here as elsewhere.

Some rose lovers rest their plants during the middle of the Summer by withholding water and food and stir the soil less;

the large weeds are kept out but otherwise the ground is not cultivated. If it has a light mulch on it, it will keep in good condition for this purpose, which has for its object a short rest. About September or October, a fair pruning and food and water will start a new growth that will give good flowers from November on reaching the peak in March and continuing up to June. If Hybrid Teas are grown where the humidity is high they are subject to fungous diseases and a sulphur dust must be used regularly to keep this in check. Thrips are troublesome and some form of tobacco is the best remedy. For fertilizer, bonemeal and tankage are among the most favored.

Texas

Going west to the state of Texas, which has an area of over a quarter million square miles, we find conditions in the extreme south on the Gulf of Mexico somewhat similar to Florida as regards rose growing and many of the same varieties do well here. There is much good heavy soil in this State and some roses make immense bushes. A moderate pruning is given in January, removing dead wood. Cultivation is similar to like regions.

In the great central portion of Texas there are extremes of weather with sudden and violent changes; hot sun to bake, strong winds to be warded off, poor soils that need careful preparation and fertilization, and in some cases alkaline soil that must be dug out and neutral soil from the valleys substituted, with leafmold or humus added. Where the soil is naturally good, fertilizer is applied in the regular manner. Good soil may be prepared in the Fall and planting done in January. Budded plants do well and, in some sections, own root plants also do well. There are prolonged periods of heat and drought in the interior, and sudden changes of

weather in Winter are hard on roses. A cold blast after a hot spell often does damage, but many good roses are raised in this state, which now contains a growing number of rose lovers.

Arkansas

Arkansas, which lies to the northeast of Texas, has much hot weather with bright sunshine. Many of the Hybrid Teas are successfully grown, budded on Multiflora. A great variety of roses may be grown successfully in this State, including the Climbing Cecile Brunner, Dr. Van Fleet, Silver Moon, Mme. Caroline Testout, and such varieties as Gruss an Teplitz, Hermosa, Souvenir de Claudius Pernet, Sunburst, the Polyanthas and others. There is a long flowering season and the constant bloomers are favored as, with a good selection of varieties, flowers may be grown in the open from early in the season up to the end of the year.

Arizona

If we skip across New Mexico, going west, we reach Arizona with its hot sunshine. Roses are grown here in the vicinity of the Salt River valley, in the shade of lath houses; yellow roses, particularly, bleach and fade in the hot sun and this protection gives good results. Roses which are heat and drought resisting may be grown in the open under the same conditions and with the same care as is given in like sections.

Colorado

In northern Colorado, with an altitude of 5000 feet, there is clear sunshine, dry air, short, cool Summers, as a rule, and a long period of frost. The hardier of the Hybrid Teas, Hybrid Perpetuals and Rugosas and hardy Climbers do well. The varieties that are generally hardy and best in the Middle West do well; often the best flowers are obtained in the



Silver Moon

A rampant growing climber with immense single white flowers

latter part of the Summer. In western Colorado the Summers are hot and dry, and here the ground must be well prepared and soaked thoroughly in hot weather.

Many of the Hybrid Teas do well. There is little mildew or black spot to trouble rose growers in Colorado, but the extreme dryness of the air in Winter is often fatal to them.

California

This State has an area of over 158,000 square miles with a curving coast line of approximately 1000 miles. It has good

heavy soil in some parts of the state; at other points the soil is not so kindly. It has much intense sunlight over most of the state, almost no rainfall in the desert, long dry Summers in many parts, and along the coast, especially the northern coast, abundant rainfall in the Winter. It has the terrific heat of the inland valley, the cool moisture along the coast line, the temperate parts of the mountain regions, and the intense cold of the higher altitudes. In many parts of the state there is no dormant season for roses, but as the dry season calls for irrigation, it is possible by withholding water to control the growth of the plants; this is practiced by some growers, although others do not think it worth while.

One will find as much difference of opinion here as to treatment as in other places; the better way for the newcomer is to drive around and visit the successful growers and copy their methods. One must live here and become acquainted with climatic conditions before attempting too much in the way of rose culture.

The south coast is an ideal place for Tea Roses, Pompons, Climbing Teas and Noisettes. As for Trees and Standards, conditions here are ideal and approximate more nearly those of Florida than any other section of the country.

Almost perfect conditions obtain in California, so roses may be grown with less effort than in most other regions. Roses grow into large trees, climb over houses, and often yards up into trees where the shade is not too dense. Hybrid Teas are also well grown. The Hybrid Perpetuals and Rugosas and the hardy Climbers are not favored, as their flowering season is too short in a land where roses grow and flower continuously in such profusion.

Such old favorites as Gloire de Dijon and Marechal Niel flourish. Where the ocean influence is felt, its fogs and cool winds may cause mildew and black spot, but this may be

readily controlled by regular dusting. *Odorata* is considered a good understock here, as is *Gloire des Rosomanes*. Roses are also grown successfully on their own roots.

Farther up the coast, *Multiflora* is a good understock, but not so favored as *Manetti* in heavier soils; the latter is largely used in the more northerly parts. Own root plants are also grown in southern California, but are not considered so good as the budded plants, which withstand the heavy rains better, will grow in poorer soils, and give more and better flowers. Hybrid Teas, Hybrid Perpetuals and the Hybrid Climbers of the hardier type are favored here as well as all the Pompons and Rugosas.

Near San Francisco the climate is more even, with a heavy rainfall in its mild short winters, and cool summers with much fog. Dusting must be done early and regularly to combat mildew and black spot; all other pests are fought in the usual manner. With the heavy Winter rains the ground becomes well soaked and growers prune rather severely in January. As soon as the heavy rains are over the ground is cleaned up and cultivation is commenced. To keep it in good condition, feeding must be done here as elsewhere.

The flowering season begins in March and extends to May or later. The dry weather comes in May and the plants are watered as needed and cultivated or mulched and fed as required. Watering, if done overhead, must be heavy enough to soak the ground thoroughly, being afterward cultivated to conserve the moisture. Or watering may be done by making holes around each plant and filling these with water, enough to soak down, afterward leveling off.

About July 1st water is withheld and cultivation slackened without letting the plants become too dry; they are kept on

the dry side until about September 1st in order to ripen the wood. The last half of August, the small weak wood, old flower heads, and dead or stubby wood is cut off, but the hard pruning is reserved for January. The plants are mulched with manure and watered liberally about September 1st; a goodly quantity of Fall bloom is secured in this way.

In the hot central valleys hardy kinds are needed, and so those varieties that best withstand heat and drought, with harsher treatment, are planted here. In the mountain regions, in altitudes over 3000 feet, there is much cold in Winter and protection is needed for the hardier kinds, as these are best here.

In the lower valleys there are varied climates, including long, dry Summers where irrigation is needed. Here a little drying off in August and restarting in September gives good Winter blooms.

California is a notable commercial rose growing state, producing more rose plants for sale than any other state.

There are many rosarians in California, the best known being Capt. George C. Thomas, Jr. of Beverly Hills, author of "The Practical Book of Outdoor Rose Growing" and the owner of a large estate on which there are many thousands of rose plants. Capt. Thomas is also a noted raiser of many excellent new varieties. Mr. Fred Howard of Los Angeles is a well known California rose grower and has originated many fine varieties; he is also a heavy commercial grower. There are many other well known growers in this favored state.

Oregon and Washington

To the north of California, along the Pacific Coast, is an immense stretch of territory reaching as far as British Columbia, where the climate is warmer than it is elsewhere in the same latitude in this country. Roses abound here in

great profusion and may be planted all Winter. The ground is seldom frozen as far up as the northern part of this section; heavy frosts are infrequent after February. Portland, Oregon, "the City of Roses," has spent more money on its rose carnivals than any other city. The climate here is congenial and roses grow in such profusion that they are often given away to visitors. In Portland there are between two and three hundred miles of rose hedges along the street curbs, Mme. Caroline Testout being largely used for this purpose.

Everyone in Portland has roses, and it would be superfluous to attempt any description of cultural conditions in this rose paradise. As far north as Puget Sound, roses need no Winter covering; growth under these conditions is comparatively easy. Pruning is done in February, with blossoms in April. Most varieties suitable for cool climates do well here. General care is the same as for temperate regions. The local practice is to cultivate and fertilize in March and April; with a light pruning in Midsummer the plants produce flowers nearly up to Christmas.

The Central to North Region

For our purpose we will include a block having Idaho as its southwestern and Illinois its southeastern base, with Montana across to Lake Superior as its northern line. Add a slice several hundred miles deep across Southern Canada and we have a territory of one and a-half million square miles in which every known variety of rose of proven hardiness may be grown. True, all do not flourish alike in every location, but everywhere some roses may be grown.

There is naturally to be found a wide range of climates. Some sections have short cool Summers; in others there is intense heat during the period when the sun is above the

horizon several hours longer daily than it is in the Tropics, and all parts have trying Winters. Both in Winter and in the early growing season there are sudden and violent changes which the careful grower anticipates and guards against as much as he can.

Roses in the more favored parts of this area may be planted in the Fall or in the Spring, but in the colder parts planting is best done in the early Spring. Many Hybrid Teas are grown successfully, also Hybrid Perpetuals. Polyanthas, Rugosas, the climbers of Multiflora and Wichuraiana origin, and some of the more tender sorts succeed in many parts of this area where the climate is naturally good for them, or where the grower is able to make suitable conditions.

Understocks

Manetti, Multiflora, Odorata and Ragged Robin are all good understocks, and each kind gives satisfaction in varying sections or, in some cases, in the same township. All these understocks are hardy and impart vigor to the tops, but none of them have any appreciable effect on the hardiness of the growing plant above ground.

Winter covering is most important in many localities and nearly every variety does best with some protection. If the ground is very dry in late Fall it should be well soaked before it freezes, and also the soil should be hilled up eight to twelve inches around each plant before they freeze. In some cases, this is all the covering required; in severe climates treat as described in the chapter on Winter Covering. Winter covering should not be taken off too early and it should not be all taken off at once. In places where there is much dry snow that remains as a dry covering all Winter, little other covering is needed, but rains and wet snow cause much loss and the plants must be protected from these influences.

A more detailed list of varieties suitable for the central to north region of the country is given in the chapter on "Adaptability of Roses." Ordinary details of cultivation are much the same as for the remaining northeastern section of the country from Maine well down toward the border states.



Chapter XII

Rose Culture Under Glass

The Small Greenhouse

Roses are of easy culture in a modern greenhouse. If you require but a few flowers each week throughout the Winter you can buy them more cheaply from the florist than you can grow them yourself, but if you wish to indulge in their culture under glass as a hobby, and the question of expense is not all important, it will prove an interesting occupation, far less expensive than many other forms of amusement, and one that in addition is health giving. Obtaining regular sun baths in the Winter that work in the rose house would ensure, would be well worth the cost and effort to many.

Temperature Changes

The temperature in a small greenhouse changes quickly as the body of air therein is small; for this reason it requires even more careful watching than the immense houses where roses are grown for market. In a large house the volume of air is so great that it is heated more slowly and is also cools off more slowly when the sun goes behind a cloud or at the approach of evening.

It should be understood, then, that a small rose house, unless fully equipped with the required mechanical devices, must have someone nearby who will surely remember to attend to it in the proper manner and at the proper time. If the owner is away from home most of the day and keeps one man in the place where duties are so manifold that the care

of the rose house is one of the least of them, the results will be unsatisfactory. On the other hand, a little careful planning will work wonders; with modern oil heating and automatic heat control the work is simplified and made easier. The rose house may be heated from the dwelling house or garage boiler; this will reduce labor and expense. It is, of course, essential that the capacity of the boiler be sufficient for all the requirements made upon it.

Heating

A rose house may be heated either by steam, or by hot water; if by steam, pipes of one and one-quarter inch diameter are best to use and it takes approximately ten such pipes for a house twenty feet wide and in this proportion for a wider or narrower house. A house forty feet wide would need twenty pipes in addition to the main or feed pipe, and the return lines that carry the condensed steam back to the boiler. This amount of piping should be able to keep the night temperature up to 60 degrees in any weather.

Sometimes a feed line is carried to the farther end of a house and is then used to feed the heating lines which pitch back to the boiler. In other cases the heating lines start near the boiler end of the house and pitch down to the farther end and discharge into a return line that in turn, slopes back to the boiler. The pipes are hung on to the side walls for the most part, in a narrow house; as the houses become wider, some pipes are spread throughout the house usually on the sides of the benches or underneath. If on the sides, they should be on the north side, as the sun warms and dries out the south side of the beds. If underneath, they should not be too close to the bench bottom or they will make it too warm, and dry out the soil in the bench too rapidly.

If hot water is used for heating, larger pipes are used, two inches in diameter being preferred for the return pipes while a larger flow pipe is used. The principles of heating are the same as for a dwelling or any other building; the details of proper heat distribution can be worked out by yourself, or a skilled greenhouse engineer will undertake the installation.

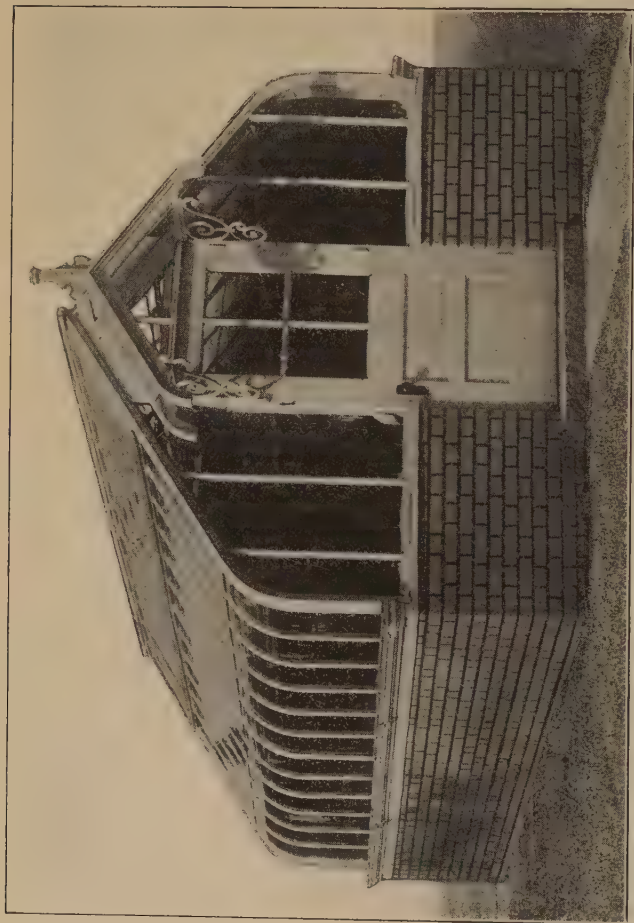
Usually, by covering pipes in warm corners with a good insulating material you can maintain an even temperature in a greenhouse. There should be no pockets nor acute angles in the heating lines or in any part of the system, or the circulation of steam or water will be retarded and the results prove unsatisfactory.

Costs

The cost of a suitable house varies greatly; with a knowledge of building and with time at disposal, one may save half the cost of erection by buying the material and assembling it himself, employing skilled labor only for special work. Where the material and labor of erection are combined, the cost will be at least two dollars for every square foot of ground enclosed, without the heating plant or extras. If a really complete house is required it is advisable to deal with one of the reliable firms of greenhouse builders; the owner will then obtain a house that will be completed in a satisfactory manner and within the date specified. If you can afford it you should have it glazed with modern health-giving glass, such as is now going into some of the new offices and other buildings in our cities; while this may not be at all necessary, its health-giving properties would be of great value.

Size of House

The size of the house depends on the wishes or on the purse of the owner. A convenient small house would be nineteen



A small modern greenhouse that can be utilized for rose growing

Photo courtesy King Construction Co., North Tonawanda, N. Y.

feet wide on the inside and fifty feet long; or it may be shorter or longer and narrower or wider, as desired. A house of the width given would hold three benches, which is the name of the raised tables on which the plants are grown, or three beds as the term is used to describe the ground plan of rose growing. These ground beds are enclosed on the sides and ends by one and a half inch or two inch boards, or by cement slabs from eight inches to one foot in height. The raised tables (benches) are built higher, on legs and across stringers of lumber or cement, with a bottom of boards or slabs of cement. This bottom must not be made tight; the boards or slabs should be about eight inches wide and be spaced with a half inch opening between the slabs for drainage. Cement is preferable to wood as it is lasting; wood will rot away in time and must be replaced; when rotting it makes a harbor for vermin.

Planning the Beds

The beds should not be more than fifty-four inches wide; beds of four feet wide give good results. Walks may be of any width to suit the owner, say from eighteen inches to three feet. Usually, in a greenhouse, at least one-third of the room inside is given up to walks and two-thirds to growing space. A house nineteen feet wide would divide as here given; the wider the house the more tables (benches) it may contain. In any case, do not increase the width of the benches to over five feet.

Each of these beds or benches will hold four rows of plants; the two outside rows may be planted each six inches from the outside of the bed, with a space of one foot between each inside row; the plants may be set from twelve to fourteen inches apart in the rows. Such a bench would hold one hundred and fifty plants for every fifty feet in length. Thus, a house with three benches would take four hundred and fifty plants.

Do not begrudge the space taken up by the walks for the plants do best on the outside rows where they get the most light and air. Good growers say that the best roses grow in the walks.

Drainage

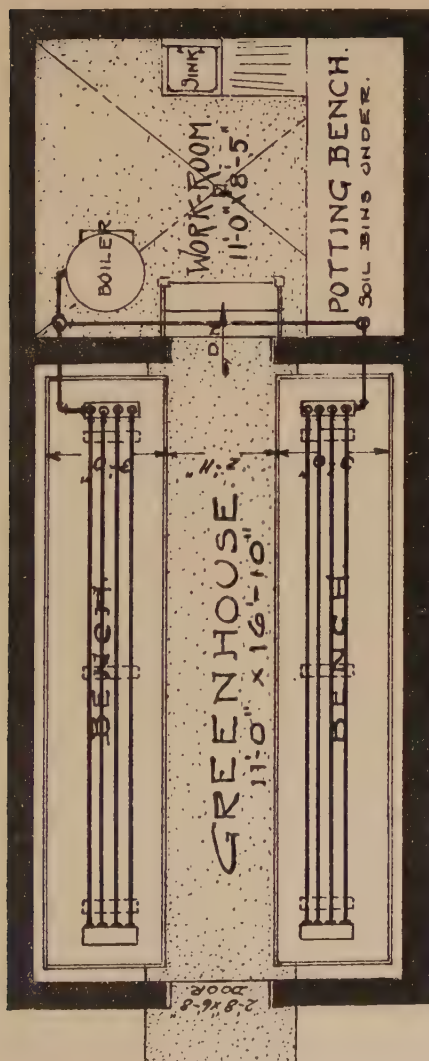
In ground beds, drainage is provided by filling in the bottom with coarse gravel, cinders, or similar material, unless the beds are shallow and the ground drains naturally.

Even if you build the sides to your beds a foot deep so as to bring your plants up into the light or to provide drainage, you should fill in the bottom four inches with filling. Six inches of good loam is enough for the plants; this will leave a space of two inches to the top level of the side walls for future topdressing. With raised benches six inches is deep enough and, with the half-inch spacing, drainage is ample.

Nothing further is required. although some growers place a thin layer of straw or litter on the bottom, or a little rough manure. Commercial growers find really little difference between raised or solid beds for indoor rose growing. The raised benches would be easier for the amateur and eliminate some backache; the growth, too, is a little quicker in the Winter, but this latter advantage is offset in the heat of the Summer when plants in ground beds are happier. To get the best results in the Winter time the house should be so placed that it gets the sunshine the entire day; it should run lengthwise from east to west so that the sun is broadside on during the greater part of the day.

What Stock to Plant

For young rose plants suitable to plant inside for Winter flowering, grafted plants out of two and a half inch pots are generally used. You can buy these and have them delivered when you want them; or you can make arrangements to have them grown on onto a larger size and delivered to you



This plan is of a greenhouse used for mixed stock and is included in this chapter to give a general idea. Roses could be grown on one bench and flowers that like the same temperature on the other. If desired, crops like tomatoes or string beans could be grown with roses in such a house.

Courtesy King Construction Co., North Tonawanda, N. Y.

later on, naturally at an advanced cost. The business of producing these young plants on a large scale is highly specialized and in the hands of a few large firms, each as prominent in their line as the makers of our best motor cars. You can buy direct from them, or through a good seed house, or through your local florist or supply man.

The Acid Test

Of the hundreds of varieties of roses that are good for the garden there are about a dozen that are given a place in commercial cultivation. There are many more that could be grown that are really very fine in various ways, but the market more and more demands standardization and elimination of duplication in shades of color. The test is very rigid, and a rose must have every good quality to pass, such as fine foliage, free habit of growth, stiff stems and flowers of good shape, color, fragrance, opening well, holding their color when cut, free from disease, not inclined to rest in Winter, and each must be the very best of its particular shade.

Standardization

The grower of 25,000 or of 100,000 plants or more, for cut flowers, is much better off with six varieties than he would be with fifteen, for the fewer the varieties the easier they are to handle and to ship; this because every variety of commercial rose has its own peculiarities. If a variety has petals of soft texture it will not ship well, will bruise easily and the dealers will not handle it if they can get something better. During the past few years in Columbia and Premier, we had two varieties that were highly popular and which were very largely grown for cut flowers; both of these have now been superseded by sports from themselves of which there have been many from each.

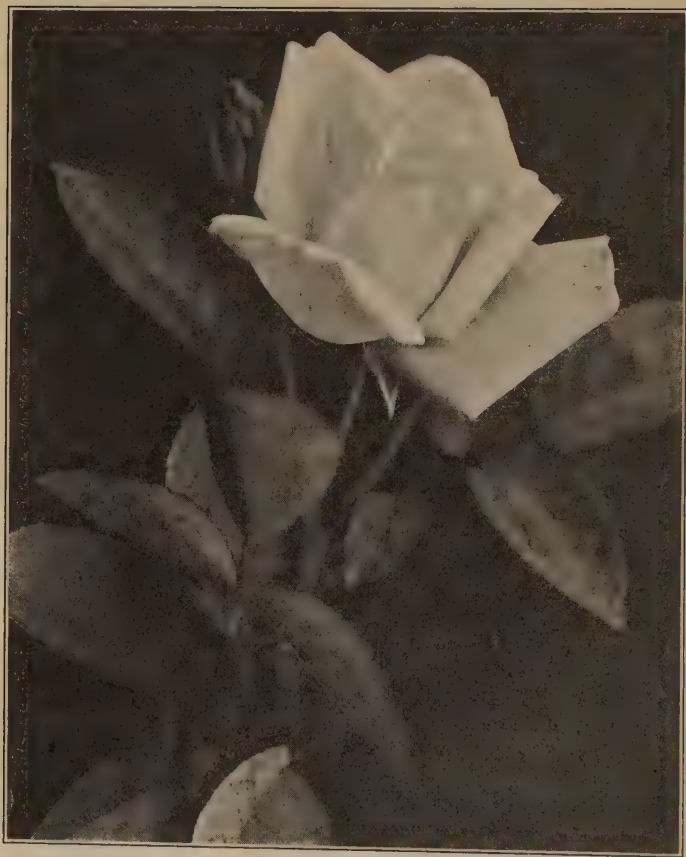
On Sports

Where a rose is grown in quantity, under intensive cultivation and over wide areas, it will sport in a number of places. A shoot will grow out that is a throwback to some variety that at some time was related to the parents of the variety under consideration. This shoot may be somewhat similar to the rest of the bush; often it will have somewhat larger and finer foliage, the color of the flower will be different and perhaps the shape may be better, with superior habit of growth in the plant. The grower then propagates every cutting from this new shoot and tries it out on an extended scale; should it become fixed as an improvement over the original the stock is multiplied and placed on the market.

This explains why such wonderful varieties as Ophelia, Columbia and Premier have been displaced. The first by Madame Butterfly, Rapture, and other less prominent of its sports; Columbia by Briarcliff, Scott's Columbia, and others of this family; Premier by Premier Supreme, Matchless and others of that type. The old Killarney gave many sports, including the White Killarney, which is at times seen producing a pink flower, showing a reversion to the original type.

The best kinds for the amateur to grow under glass today would be: a few each of the Butterfly, Columbia and Premier families; Templar or E. G. Hill for red; Joanna Hill, for a yellow, is good and fairly easy to grow; Talisman is also of easy culture and makes a strong growth very quickly and is remarkably free from disease. Kaiserin Augusta Victoria is a good white under glass but the texture of the flowers is too soft for shipping long distances; for home use, it would be good.

The amateur, growing for his own pleasure, can extend this list as he desires if he has the room, selecting such varieties as please him most in his garden and that show signs of blooming right up to frost outdoors.



White Killarney

The only white rose universally grown under glass for cut flowers.
Free flowering in the garden; more subject to mildew than
many other kinds

Preparing the Soil

Having decided to build a rose house you must prepare some good loam for planting; do this in the Fall if you can, or early in the Spring as soon as the ground is dry enough to work. A good sod of Clover and Timothy out in the field, or from the cow or sheep pasture, or good loam from some part of your grounds, will form the base of this rose soil. The easiest way to prepare it is to plow and harrow to break up the sod and manure; add one part of good, fresh barnyard manure to four or five parts of loam. Mix this well with the loam by plowing and harrowing.

One man with a pair of horses will prepare enough loam in a few hours to fill a small greenhouse. It is best to let this loam lie a few days or a few weeks, depending on weather conditions, and then to work it over again. Or you can collect the sod and loam and make a pile of it, using first a layer of loam, then a thinner layer of manure, and so on, until you have a pile of the required size and height. You can figure the amount required by measuring the cubical content of your pile and comparing it with that of your bench space.

This loam pile is built as far in advance as possible before it is to be used; then later it has to be chopped down in slices and turned over and mixed by hand, all of which is slow work and costs more than the use of horses or tractors. It would be possible to get better soil, however, by the hand picked method because of the selection of the best loam, the correct mixture of soil and manure, and the after handling.

Do not shake the fine soil out of the fibrous part but break up the mass so that, when finished, it lies together in as near the natural condition as it is possible to keep it. There are soil shredders on the market which break up and mix loam and, where there is much of this work to be done, these are very helpful and will soon pay for themselves.

When the house is ready for use the soil is carted up to it and thrown on to the benches through doors or windows, or it may be wheeled in by building a runway and laying boards on the bench to wheel over. Carried in in whatever way may seem to be the easiest, it should be put in when it is rather dry as it is not so easy to handle when wet and is also liable to cake. The beds should be filled level full and be raked over to make them smooth, raking all the lumps as you go along so that they fall ahead of you to the bottom of the unfilled part.

It is well now to put on a good sprinkling of bone flour, using ten pounds to every one hundred to one hundred and fifty square feet of bench surface; the larger amount will not hurt if it is well raked into the soil. Bone flour is slow to become available; it combines with the soil and does not leach out and will help the plants later on. You will notice that where you dumped the loads from the wheelbarrow, or threw it down heavily with the shovel, the soil is somewhat hard in these places and packed down, while the outside edges, where it was raked over, it is loose and spongy. It is well, unless your soil is wet and of a heavy, clayey nature, to walk over the beds and tread down the loose places, so that the whole mass is alike, then to give it a final raking over, after which it is ready for the plants.

Planting and After Attention

First count your plants and having decided the distance apart you will plant, mark out the ground, either by a marker made for the purpose, or by a rule and pencil marks on the edge of the benches, using a line to get the rows straight; then dig holes with a trowel deep enough to set the plants so that there will be just a little soil between the bottom of the root ball and the bench bottom. Set the grafted part,

which will be near the top, in such a manner that it will be covered by the soil and not exposed above it.

This is possible in as little as five inches of soil, the plants being grafted low enough to allow for this setting. In case your plants are grafted somewhat higher on the root stalks so that these are above ground at first, later top dressings will cover them. In fact, thousands of roses are successfully grown where they are not so covered. Make the hole just large enough to receive the ball and press the soil firmly all around it so there will be no air spaces. Leave a slight basin around each plant, and as the work progresses, water well by filling each hole. After all are planted and well watered around each plant without wetting the rest of the soil in the benches, no more water at the root is required for several days, perhaps not for a week or more, depending on the state of the soil and the weather. Heat dries the soil out quickly, calling for water oftener than if the opposite conditions prevail.

On the Use of Water

In hot weather, the house will require frequent damping down to keep up the proper moisture and to cool it; do this several times daily. Where the walks are of cement these should be well washed down at the same time. A house of iron and cement construction becomes hot and dry in the Summer. One of the causes of failure in these modern small houses is the lack of moisture. Evaporation is rapid and so it is almost impossible to get too much moisture in the air during the heated period of Midsummer.

The plants must be syringed underneath frequently with a fine, sharp spray from a nozzle that throws a stream upward on one side so that every leaf may be reached on the underside with force. It is, therefore, important that the plants be supported so that they will not be broken off at the graft;



President Herbert Hoover

A new and very beautiful American raised rose of varying shades which will no doubt become deservedly popular. Originated by L. B. Coddington, Murray Hill, N. J.

they should be tied up as soon after being planted as the work can be done. For this purpose wire stakes of No. 8 or No. 9 wire, each four feet long, are used, one to each plant, to tie to. These are held in place at the top by wires of No. 18 gauge, running lengthwise of the beds and secured at the end to neat frames of iron, made either of small pipes or of flat iron.

On Cultivation

The surface of the soil in the beds should be rubbed over once a week with the hands or lightly scratched with a cultivator of some kind to keep down the weeds and to prevent the soil from baking. This will also conserve the moisture; the more faithfully this is done the better will be the growth. In addition to this regular spraying underneath the foliage, with the damping down overhead of plants and all wood-work or cement in the beds and wetting of walks, give water at the roots at intervals as may be required. For the first few weeks after planting, care must be used not to overwater at the roots, but as soon as the plants take hold and begin to grow rapidly, they will require more soil watering and should never be allowed to dry out. After about one month you can begin to water the entire surface of the ground, probably once every week and, in some cases, twice weekly.

Tying

As the plants grow they need to be kept tied up to the stakes to allow the sun and air to circulate among them. During Summer some of the small rubbishy growth is trimmed out of the middle of the plant to make room for new growth.

Ventilation

The house is never closed tightly during the Summer months; some air is to be left on all night, except at intervals in cool, still weather, when it is closed for fumigation to kill

green fly. There are several ways to do this, the safest being to burn a small quantity of tobacco dust or nicotine soaked paper, or to spray with nicotine. All these may be obtained in seed stores, directions for use coming with them. Do not fumigate in windy weather or on hot nights. After fumigation in Summer open the house early in the morning, as a small house gets overheated quickly if kept closed tightly. Aim to keep the temperature as even as possible and do not open a house wide all at once; commence to increase the ventilation very early and increase gradually except in torrid spells of weather when the nights are hot. At this time the ventilators are left open more than usual and are thrown wide open soon after sunrise, for the heat rises quickly at these times.

Seasonal Changes

As we approach the Fall, the ventilation is lessened, especially in the early morning and the late afternoon, but a little is left on all night, even if fire heat has to be used to keep the temperature up to 60 degrees, otherwise you will find beads of dew on the foliage in the morning and, after a few mornings of this, you may find the leaves dropping off from black spot; this will give the plants a bad setback. If such a condition happens it is best to let the plants run somewhat on the dry side until they make new leaves and then to start over again with the watering.

On Preparedness

To prevent mildew and black spot you should dust the foliage lightly once a week at least, preferably every Saturday, with the Massey dust, and let this remain in until the plants need to be syringed. The amount of water needed for damping down is reduced as we get nearer the short days, and this is gradually discontinued. One or two syringings weekly during the Fall and Winter months are usually suffi-

cient, but no set rule can be given. Experience will teach you to sense the right atmosphere in the rose house. It may be said, however, that as a rule too little rather than too much water is the stumbling block with many growers. Few realize the immense amount of water evaporated in a greenhouse, both by sun heat and steam heat in cold, dry weather.

On Feeding

One to two months after setting out, your plants should be growing well, at which time they will be benefited by a mulch of half rotted manure, or a special mixture of loam and fertilizer, or you can buy sheep or shredded cattle manure in bags and use this freely on top of the soil. Liberal feeding must be practiced to get the best results, so a further light sprinkling of some fertilizer every two weeks all through the Winter will be of benefit.

In the way of fertilizer a light sprinkling of dried blood will often work wonders; or tankage or wood ashes may also be used alternately. Such stimulants as nitrate of soda or dried blood must be used sparingly and never when the soil is dry. Water first with clear water if the soil is dry before applying strong liquid manure or fertilizers.

On Heating

The temperature (Fahrenheit) in Winter should be kept at 60 degrees at night, with a maximum of 78 degrees on sunny days, and 68 degrees in dark weather at midday. Place the thermometer where the full rays of the sun do not strike it or it will show much higher at times and it will be more difficult to regulate the amount of ventilation required.

After the middle of March the plants will grow rapidly and require more food and water; if then they are growing well you will have quantities of fine flowers. You may then

cut long stems with the flowers, as new growths will start out all over the plants.

The first Summer and Fall after planting young stock it is best not to cut the plants too hard until they get established and are growing well. Be content to cut away the poorer buds while they are green, leaving all the fully developed leaves on the plants. Such stock as described is good in the rose houses for several years if kept well watered through the heat of the Summer.

On Summer Care

Around the first of July prune the plants by shortening back the tops about half way, cut out the small, weak shoots, topdress with a good, rich mixture, water as usual, and keep the plants clean; observing these rules, they should do very well the second year. If you are successful with what you have, but decide to replant to introduce newer varieties, you can dig out the plants to be discarded after the flowering season in time to allow a good start with your new young stock; this will be in May or June. These older plants will be available for outdoor planting if you wish quantities of flowers to cut.

Roses in Abundance

Plow out some furrows in an available spot, three feet apart, cut the plants in the greenhouse down to within a foot from the ground, dig them up and plant at once in the trenches, one foot apart; cover the roots with loam, tread this down well, and then rake over the ground. In a few weeks, these plants will make a new growth and will give quantities of flowers during the Summer until your new young plants come into bearing. You will probably have your regular crop in June and July in your rose garden, so that in this way you will have a generous supply of roses

during the entire year. As soon as the old plants are taken out of the house you can remove the old loam, fill in with new as at first, and plant the new young stock, treating it as you did in the first place.

For fuller details of culture under glass consult Commercial Rose Culture, published by the A. T. De La Mare Co. Inc. of New York, N. Y.



Chapter XIII

Insect Pests and Diseases

Insect Pests

THIS chapter is not written to discourage the reader by relating a story of the infinite variety of insects and diseases, but to show how easily the majority of rose troubles may be controlled and how little lasting harm they actually do if proper measures for their suppression are taken at the right time. Prevention is always better than cure and the most successful growers are those who strike first and force the fighting, never giving the bugs or the blights a chance to do serious damage. All the materials mentioned in this chapter may be purchased from a good seed house or, if there is no seed store in your town, they may be obtained from a hardware store.

The amateur grower may have to have recourse to a study of this chapter from time to time. He is hardly likely to meet all the troubles mentioned herein; in fact, he may meet none of them. Absolute cleanliness of the rose beds and surroundings and good culture is ever the best preventive.

A GOOD INSECTICIDE

Tobacco dust is not an expensive item, especially if it is bought in quantity. If used during the early growing season at the rate of one pound for every bush it will drive away bugs, fertilize the plants and help keep away black spot. For rose midge or for the larvae of the Strawberry Root Worm, or for any grubs in the soil, there is nothing better

than covering the ground with tobacco stems. Those who live near cigar factories, or wherever it is possible to procure such stems cheaply, will find these a good material for mulching. Tobacco fertilizer or refuse is also sold commercially and may be purchased through any seed house.

A good dust for all leaf eating insects is ten parts sulphur to one part of Paris green (dry):

Or nine parts sulphur to one part dry arsenate of lead;

Or, for a spray, one ounce arsenate of lead to one and a half gallons of water.

Here is a table of measures which may be found useful in this connection:

- 3 teaspoonfuls make 1 tablespoonful or 4 drams
- 2 tablespoonfuls make 1 fluid ounce
- 4 tablespoonfuls make 2 fluid ounces or one-quarter cupful
- One-half cupful makes 4 fluid ounces or 1 gill
- 1 cupful makes 8 fluid ounces or 2 gills
- 2 cupfuls make 16 fluid ounces or 1 pint
- 4 cupfuls make 1 quart

APHIS OR GREEN LICE

One of the first pests likely to make its appearance is aphis, green fly or green lice, as this insect is sometimes called. These insects cluster thickly on the tips of the young growing shoots, giving them the appearance of shoots of moss roses. As they appear before the flowers open it is a simple matter to dust several times early in the season, in the early morning with tobacco dust or some other dust containing nicotine.

Tobacco dust will stick to the damp foliage and is highly effective. It cannot do harm; apply as often as you wish, covering every shoot. There is no need to cover too thickly nor to waste the material; with a little practice you can shake it on with your hand; or make a bag with coarse burlap and shake over the bushes; or use a bellows. If you do this early



Mme. Jules Bouche

A vigorous grower, freely producing fragrant, almost white flowers;
one of the best white constant blooming Hybrid Teas

and the rains have not washed it away by the time the buds are ready to open, you can wash them clean with the hose and usually you will have no more trouble from that source.

Aphis or green fly is more troublesome on soft shoots in moist, cloudy weather than in hot sunshine. You can spray with a liquid if you wish, using one teaspoonful Black Leaf 40 and one ounce of soap to one gallon of water. The soap used, as given in any formula for plant spraying, should be of the nature of Ivory soap, Lux or any other brand of a non-

caustic nature. It is used as a spreader and sticker; it makes the other materials more effective and also spreads them farther.

GREEN WORMS

Grubs, in the form of caterpillars of various kinds, appear in May and June as the young shoots unfold. Tobacco dust is again of avail, also white hellebore, dusted both on top and underneath the foliage, where it will not be wasted off too quickly. All dusting must be undertaken when there is no wind blowing and is best done when the foliage is slightly damp, causing the application to adhere.

The best time to dust is in the early morning of a day promising fair, while the foliage is still moist, otherwise rains will wash it off, making it much less effective. A point to remember here is that whenever heavy rains wash away your dusts or sprays, you must repeat the operation as soon as the weather is clear.

Hand picking is effective in cleaning up caterpillars over small areas; children are interested in doing this and may earn money at that occupation.

LEAF ROLLERS

One troublesome insect in May is the leaf roller, which eats holes in the buds and curls up the leaves at the tip of the shoot. If hellebore does not kill this pest, arsenate of lead usually will clean foliage essential for perfect flowers.

The most simple method of dealing with this pest, however, is to go over the plants daily and watch for any suspicious curling of the leaves. The pest invariably attaches itself to the young leaves near the tips of the growth and, whenever such leaves appear to be abnormal, gently squeeze them with finger and thumb. One can immediately tell whether a worm is hidden there; if not there is no harm done. On the other hand, if the worm is there, the squeeze

will end its operations. These worms are fast workers and, given one day, they will do much damage. The fact that they roll the leaves prevents a contact spray or powder reaching them, while poison sprays have to be eaten to be effective and, by that time the worm may have ruined a bud or the point of a young growth.



Ophelia

A very fine garden rose which has produced many sports, the best known among these being Madame Butterfly

ROSE BUGS

Rose chafers or rose bugs are a pest in some places; these are generally worst in light sandy regions and trouble light roses more than dark colored ones. Older rose growers used to advise planting white flowered shrubs like white Weigelas or white Viburnums in the vicinity of the roses as a counter attraction. But there is little you can do except to pick the bugs off by hand, dropping them into a small pail of kerosene. The bugs are drowsy, so attack them in the early morning, when they may be easily caught, or jarred off with a slight tap, or shaken off into the kerosene pail. Fortunately, these pests do not remain long with us; some years they cause no trouble worth mentioning, while some places escape them altogether. There is one preparation, "Evergreen," that is said to kill rose bugs; several of my amateur rose growing friends have reported success in its use.

Always remember that in fighting insects and diseases, all remedies are not equally effective at all times and in all places, so if one preparation does not give the required results, try something else.

One of the joys of rose growing to those who are really interested is the knowledge they gain as they work; and the additional pleasure of imparting this knowledge to their friends.

RED SPIDER

I must not forget to mention one little insect which is familiar to all who grow roses under glass, and unless checked is one of the most destructive of pests on plants grown indoors, but out of doors I do not know of its being a serious menace. I refer to what is commonly known as red spider; it is a tiny insect found underneath the foliage, hardly discernible with the naked eye. If you see the foliage becoming

mottled, unnatural in appearance, and in severe cases looking as though a fire had scorched it, examine closely underneath the leaves and you may see tiny eggs sticking to the leaves and tiny insects crawling around.

These insects breathe through the skin, so a spray with a soap solution is good to clog up the pores and thus kill them. However, usually all that is necessary outdoors is a syringing underneath the foliage with a sharp spray from a fine nozzle on the end of the hose and a pressure of at least forty pounds behind it. This pest is troublesome in hot, dry weather but, as a general rule, will not appear in sufficient numbers to do damage in a cool, moist climate.

The golden rule, when fighting insects, is to begin early and keep up the fight.

DISEASES

Mildew

The two diseases usually most troublesome to rose growers are mildew and black spot. Mildew may appear in any soil and in every country where roses are grown. It is caused by a fungus and, as fungous spores require moisture for their germination, it will be readily understood that moist, muggy weather is conducive to the rapid spread of disease, while dry air with bright sunshine is the best natural preventive. Sudden and great changes of temperature cause mildew; also drafty situations.

Roses on hot walls may suffer from mildew and the once universally grown Crimson Rambler, when planted in town lots, between houses, in a constant draft, suffered badly, while the same rose out in the open made a beautiful pillar rose free from mildew. Under favorable conditions, as in humid weather without heavy rain, the spores multiply rapidly, but during frequent and heavy rainstorms the

spores are washed off the foliage and drowned out and consequently are not troublesome.

When the spores are ripe the foliage is covered with a white powdery substance and in this stage it may be carried around on the hands or clothing, or blown by the wind and spread to other bushes. In the absence of rain, heavy drenching overhead with the hose will be of benefit. A good circulation of air is of benefit; roses in the open sunshine, in free air, are not so troubled, especially if these have been well fed and cared for, so that they are full of vigor. Such roses can shake off disease in much the same manner that strong, healthy people do, while poor sickly plants fall heir to every disease. To have your roses clean and healthy, keep the plants growing well. A film on the foliage, placed there by spraying with a solution of whale oil soap, makes it hard for the spores to find a place to germinate; a protective dust has the same effect. Spraying, as a rule, is less wasteful of material than dusting, although dusting is more easily and quickly done.

For a spray, a preparation called Fungtrogen, used early in the season when the leaves first appear, is beneficial and causes no unsightly foliage later on. The easiest to apply, and an effective remedy at that, is the so-called Massey dust, first used and recommended by L. M. Massey, Plant Pathologist at Cornell University, New York State, who has done much valuable work investigating plant diseases. This remedy is simple, being composed of nine parts of fine dusting sulphur to one part of thoroughly powdered lead arsenate. If you wish you may add to this some fine tobacco dust which will kill insect life in addition to checking disease.

You should dust regularly every week or ten days if you wish to be free from disease; if heavy rains come to wash it off, dust again.

Black Spot

Black spot is a disease inside the structure of the leaf, unlike mildew, which is on the outside, and another difference is that while mildew is progressive in its action, black spot is instantaneous. Mildew renders the foliage unsightly; black spot removes it altogether, the leaves of affected plants falling off rapidly. The remedy is prevention, either by spraying or dusting, beginning early in the season and doing it regularly.

You will recognize this disease by the black spots on the leaves, and by their turning yellow and falling off, commencing on the lower foliage and working upward. Roses with a strong admixture of brier blood in them are the most readily affected; many of the Hybrid Teas next; the Tea Roses to a lesser degree. This is a bad disease when it remains unchecked; the leaves fall off in Midsummer; a new growth starts late in the season, but it is soft and does not ripen; the plants are in a weakened condition and often winterkill.

Overwatering or wetting the foliage or the ground heavily at nightfall, after Midsummer, may cause this disease. The easiest method of control is to commence dusting with the Massey dust when the young shoots are six inches long; do this once a week. If it is washed off by rain, dust again as soon as the weather clears. In wet weather, either dusting or spraying to be effective must be persistent, and it is important to have this protective covering on the foliage whenever a spell of moist, muggy weather is in the offing. A vigorous growth on a healthy plant is less susceptible to this disease.

There are now several spraying preparations on the market. Authorities recommend spraying the ground as well as the foliage once every four days, using alternately one tea-

spoonful Semesan to four gallons of water, and one part Fungtrogen to sixty parts of water. After the first bursts of flowers are over and when fewer visitors are in the rose garden, any effective spray is permissible, as a slight disfiguring of the foliage will not be as noticeable at that time. Diseased leaves should be raked up and burned; otherwise they will be blown around and so spread the disease.

Brown Canker

Another disease is brown canker, sometimes called "die back." This is caused by a fungus and affects the stems or woody part of the plant. It works slowly. The best remedy for this, as well as for all diseased or dead wood, is to cut away to sound new wood with a sharp clean knife and paint the cut with Semesan. Sterilize the knife by dipping it into a solution of formalin or some other agent; use a small can to carry it around. If this work is done in a careless manner, these diseases may be spread around by the hands or with the knife to clean plants. For further information on rose diseases, consult the experiment stations in your state.



Chapter XIV

Calendar of Operations for Temperate Sections

January

As the new catalogs come in look them over; make up the list of roses wanted and place your order early. Buy all you can locally. Check up on the offerings in the various catalogs. It is better to pay the fair prices asked by responsible dealers. Even though plants are not to be shipped for some time yet, it is best to get your order in early.

When you order your plants specify exactly what you want so there can be no mistake. The very best plants obtainable are two or three year old, budded and nursery grown stock. Write the names carefully, the number of each kind wanted and ask to be notified promptly if your order cannot be filled so that you can place it elsewhere. As there are many good varieties, and some are similar in appearance, you should state if you are willing that these be substituted if your first choice is sold out. Write your name and address legibly and give an approximate shipping date. Early orders are filled first from the best plants and while there is the best selection. There is nothing to gain at any time by delaying your order for the best plants never find their way into bargain sales.

Keep a notebook for your records. It will serve you well from year to year.

February

The work will be similar to January. If the weather is fine look over the bushes for possible insects or disease; remove and burn if such are found. In southern sections planting is done now, continuing up to May as we go north.

Prepare labels that will be legible and lasting. Those of fairly large size which can be read a short distance away when they are stuck into the ground are best for the garden. The small wooden labels that are attached to the plants with wire when they come from the nursery are for temporary use; these will last for a year or more, and may be bought cheaply. If they are used they should be replaced at intervals, as when the plant grows the wire cuts into the bark if it is put on too tightly, also when pruning the plant these tags are likely to be cut away.

March

Do not take off the Winter covering too early; do not take it all off at one time. Check up on winterkilling in the cold states and make plans for changes in the layout of your beds, or for additions. With proper attention roses of the hardier type will live longer than a human being. If you have a bush that you prize and wish to move it to some other location it may be done by digging it up carefully in March or April, cutting the top back hard, pruning off the large roots carefully and replanting in good soil. Plants that you buy in flower in pots for Easter decoration may be planted outdoors when the weather is suitable. After flowering, continue to water them and harden off gradually from the living room temperature to outdoor conditions.

April

The chief work this month is uncovering, pruning, cleaning up, cutting off and burning all diseased or dead wood. Prune

hard the first Spring after Fall planting. When planting in Spring if the pith is white when you cut off a shoot it is alive; if it is brown, it is dead or severely injured. Tops of shoots may be dead but alive below; cut to live wood always; cut out every small, weak shoot.

When planting standard roses a little burlap well soaked in water and wrapped around the stems will keep them moist and help to give them a start. Keep moist for two weeks after the plant is established, then take off the burlap. See that all plants are properly labeled; replace labels that have been lost or cut away with the dead wood. If these are tied on with wire see that this is not so tight as to cut into the bark. Keep a record of location of each plant if you wish to be sure of the name in case the label is lost.

May

Remove all suckers from the root stock that may come up from the bottom of bush plants but do not mistakingly cut out the strong shoots of the budded varieties that often come up from the base after the Spring pruning. The wild shoots that come out of the ground are often thorny, invariably have more leaflets, and present altogether a different appearance from the rest of the plant. Do not cut the top off these suckers but remove them altogether with a downward thrust of the knife, somewhat the way asparagus is cut. Cultivate, dust, spray; pick off caterpillars, thin out weak growth.

You may buy strong pot grown roses for late planting to fill in vacancies or to make a new bed; these may be planted in bud or in flower. Dig holes with a trowel, plant and firm down well and soak with water. If necessary, shade for a few days; such plants will keep on flowering if you purchase the proper varieties from a reliable source. Fertilize and



Baby Rambler in a pot

These are most useful for forcing in pots for house decoration. If they are not abused in the house and are properly hardened off, they will be good to plant in the garden after the flowers fade

cultivate regularly. Use the Massey dust to prevent mildew and black spot. Apply tobacco dust or nicotine for all sucking insects.

Roses in pots in flower bought or received for Mother's Day may be planted in the garden as soon as the flowers are gone. Loosen the outside ball a little, soak well in a pail of water before taking out of the pot. Hybrid Teas and the Baby Roses will flower again after planting carefully.

June

Cultivate, dust or spray regularly. Feed and water well. Use manure water every ten days to promote growth or apply a good fertilizer raked into the soil. A good, strong, clean growth at this period will help insure success later on. Cut off all old flowers as fast as they fade and new growth will start. Spray or dust before a rain. If the ground is dry use the hose on it before applying the liquid manure, and again afterwards. Cow, sheep or poultry manure may be used to make liquid manure. Use one-quarter the quantity of poultry manure and one-half the quantity of sheep manure that you would use of cow manure; put into a coarse burlap bag and soak in a barrel.

Cut the flowers in the early morning or in the cool of the evening. If you wish special flowers for exhibition, you may shade with cotton cloth the way tobacco is grown. Where or when the sun is scorchingly hot this method gives good results. Pick off rose bugs and watch for other pests. Visit good rose gardens and make notes of the best varieties. Remember your sick friends or anyone else if you have a surplus of flowers to cut.

July

About the end of June, or early in July, you may mulch with peat moss, chopped up tobacco stems, or any approved

material; no more cultivation is then required but should weeds appear they should be removed. Dust or spray regularly. Prune the climbing roses as soon as their flowering season is over; cut out the old canes of kinds that throw up large new shoots from the bottom, such as Dorothy Perkins and others of this type. Tie up the new shoots, fertilize and water if the weather is dry. Do not cut back climbing varieties, like Dr. Van Fleet, so severely; prune these very lightly, right after flowering. Prune and tie into shape pillar roses. Bush roses of the Hybrid Tea and Hybrid Perpetual class require no pruning during their growing season, the cutting of the flowers serving as such. Practice layering with some varieties or put in cuttings.

August

Stop cultivating and stop fertilizing. Tie up new canes of climbing varieties as they lengthen, so the wood will get a chance to grow and ripen properly. Put in cuttings or practice budding. If you have dusted regularly keep it up and you will have a clean growth and retain the foliage on your plants. Do not water after August, as you do not want further new growth. Aim to get the growth well ripened in September and October. This month or next, visit good rose gardens again and note the conditions of the plants for growth, foliage and for Fall flowers.

September

Work is similar to August. Tie up shoots of Ramblers. Immature or unripened wood is more easily winterkilled than good sound wood. So strive to get good wood by feeding early, by keeping the plants clean at all times, and by tying the new shoots so that all can get the benefit of sun

and air. Make plans and prepare new beds for planting this Fall or in the early Spring. Place your order for Fall delivery.

The advantages of Fall planting are varied: more time is usually available than in the Spring; the plants in the Fall commence to make new roots while the ground is warm; the selections are more complete to choose from. If the ground is well hilled up around the plant as soon as cold weather comes, or when you are planting if it is late in the season, there is little danger of winterkilling, and Fall planted roses are ready for a better start in the Spring. You can plant hardy roses almost any time before the ground freezes if you hill up the soil to them.

October

The last of this month soak very dry ground before it freezes. Get ready for planting. Clean up and burn all diseased leaves. Dig up and replant any old plants that you wish to move; if these were planted too deeply or too shallow in the first place, you can now remedy this defect by replanting at the proper depth in good soil and you may obtain much better results. Tread the soil firmly around the reset plants and soak well with water. If these are of the Rambler type, let the shoots lie on the ground over Winter.

November

Hybrid Perpetuals require no protection except in severe climates, but it is best to hill up with soil before the ground freezes. Draw the soil up around all Teas and Hybrid Teas. Finish any planting to be done this Fall. If you receive roses that you cannot plant, you can bury them under one foot of moist, light soil, but do not bury them in wet clay loam. Cover the roots and the tops completely with soil, but make sure they will not lie in water. Any spraying re-

quired for disease or scale should be done now, before Winter covering of any kind, including soil hilling, is done. The fallen leaves should be thoroughly cleared up and burned, especially if black spot or other diseases have been present.

December

Put on the Winter covering after the ground freezes, if you use anything more than soil protection. Tie up large shoots of climbing and pillar varieties to prevent their being broken by wind or snow; cut off the ends if extremely long. If a straw covering is used, put poisoned bait where it will be dry, to kill mice. Cracked corn, soaked in a hot solution of strychnine and then dried, is effective for this purpose. See that everything is in good shape before the Winter storms begin.

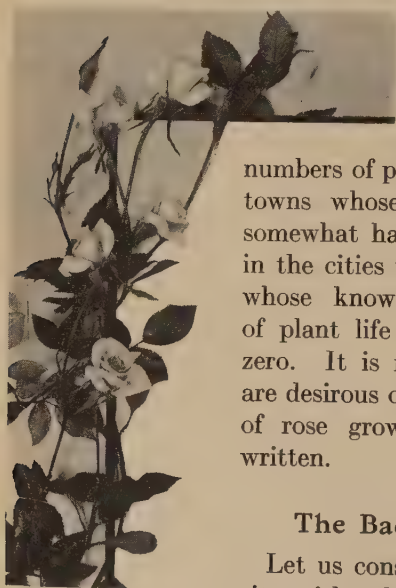
If you want nice blooms of cut roses for Christmas, you can easily purchase them from a good florist; modern glass houses with mass production make this possible. If you have some large bushes of the wild roses on your place, the birds will enjoy their Christmas dinner of rose pods.



Chapter XV

The A B C of Rose Growing

(This chapter is written exclusively for the beginner, hence some repetitions may be observed in other chapters)



It is somewhat difficult for persons who have lived among flowers the greater part of their lives, to realize that there are vast

numbers of people in villages and country towns whose ideas of rose culture are somewhat hazy, to say the least, while in the cities there are millions of people whose knowledge of the fundamentals of plant life and growth is at absolute zero. It is for the benefit of those who are desirous of learning the fundamentals of rose growing that this chapter is written.

The Backyard Rose Grower

Let us consider first, the person in the city with a backyard as the only place at his command wherein he may gratify his ambition to grow something. This backyard, or perhaps front yard, may be twenty-five feet wide by fifty feet long, or of any

other size to fit the plans we have under consideration. It is probably surrounded by a fence of boards or wire, and the soil may be of fair to poor quality, or perhaps fill-in material, unworthy of the name of soil.

Consideration of Costs

The first consideration is the amount of money that can be afforded by the beginner. If this expense must be kept down to the minimum, fair results may be obtained by digging holes, filling these with well prepared soil, and planting in such places. If you must buy soil, the easiest way is to purchase the proper mixture from some country florist or nurseryman. You should state the purpose for which it is to be used and see to it that it is delivered to you in the right condition for the object in mind.

The Use of Good Soil Pays

It is sometimes possible in suburbs of every city or in small towns, to purchase good top loam from contractors who are excavating for building purposes. Frequently they have to cart it some distance to get rid of it, at considerable expense, and they, therefore, will be glad to deliver a load for a reasonable sum. If such a quantity is required, this is a good way to buy loam. For a smaller quantity, specially prepared, the florist, nurseryman or seedsman is the best source of supply. If you have fairly good soil in the yard, you need only buy fertilizer to make it suitable for your purpose. You can obtain dry, shredded cattle manure or sheep manure in bags, from the seed store, and about six pounds of the former or two pounds of the latter, well mixed into the soil, may be allowed for every rose bush you intend to plant. This is an approximate quantity. These fertilizers are generally sold in one hundred pound bags and, if kept

under cover in a dry place, will retain their fertility almost indefinitely.

A Modest Beginning

If you are to start with but a dozen plants, a bed four feet wide and six feet long would be all right if you can work from both sides of the bed. This gives three rows of four plants each, each plant to be eighteen inches apart in the row, with the two end plants each nine inches from the outside of the bed. The two spaces between the rows are each fifteen inches apart with nine inches between the rows of plants and the outside of the bed.

Good Exercise

If you have to excavate and fill in with good loam, you will require an ordinary small truckload of new material for a bed of this size. Dig out the top soil and if it is at all serviceable, lay it to one side; then dig out the bottom and dispose of it as best you can. It may consist of broken bricks, stones or refuse that has been filled in; in such cases, dig out to a depth of two feet and then fill in the bottom six inches with the larger pieces of stone or brick, covering these with the smaller pieces to serve as drainage. If there is any green sod in the loam you buy, lay this grass side down, on top of the stones; this will keep the fine soil from filling the crevices between the rocks and so assist drainage, and as it rots, it will provide food for the rose roots.

Draining the Ground

However, the matter of drainage need not concern the gardener in the average backyard, as such places are usually dry enough. If there are no stones or similar material for filling the bottom of the bed, nor any green sods at hand,

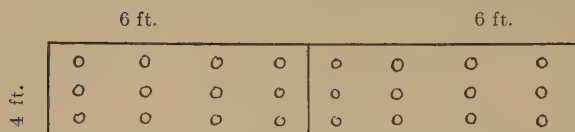
then avail yourself of any weeds or leaves to be found in the yard, or of any green refuse whatever; spread this on the bottom of the bed, covering with a few inches of the soil you laid to one side and tread it down well, afterwards filling the bed with your prepared soil.

Soil Improvement

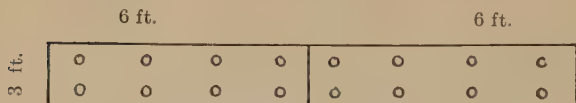
If you cannot buy loam from any source, you must depend entirely on what you have. If the soil is fairly good, but with gravel or sand underneath, nothing is to be gained by digging out more than a foot deep, placing the best loam on one side and the poorer base on the other. Now mix one-third cattle manure or one-fourth sheep manure with your best loam; adding to this, one pound of bonemeal to each bushel, or approximately a six-inch flower pot full to a wheelbarrow load of loam. Mix this well together and, if there is not enough to fill the bed, mix some of the poorer material with it; a little sand or gravel is admissible if plenty of fertilizing material is provided.

Usually, loam from a contractor who is removing it preparatory to building, must be enriched and prepared in the same manner as suggested for the garden soil, for while it may be good natural loam, it will be deficient in the food that roses require for their growth and development.

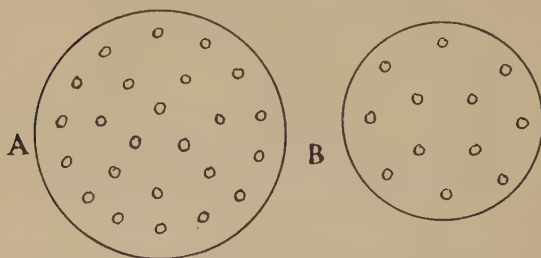
It is best to prepare the ground a few weeks before planting time, to let it settle and to allow the manure to become better incorporated. If you start with two dozen plants, you can double the length of your bed or make two similar beds, while with fifty plants you can have more diversity. The beds may be long and narrow, round or square, but should never be so wide that you cannot work among the plants without treading down the ground so that it will become a hard mass. Boards laid between the rows will pre-



A rose bed for one or for two dozen plants, with a path on either side to allow working from both sides



A rose bed that may be worked from one side only

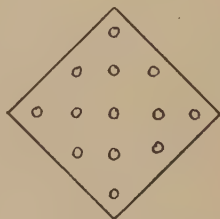


A—A round bed of roses to hold two dozen plants. It should be four ft. in diameter

B—A smaller bed could be made for one dozen plants. Should be about 3 ft. in diameter

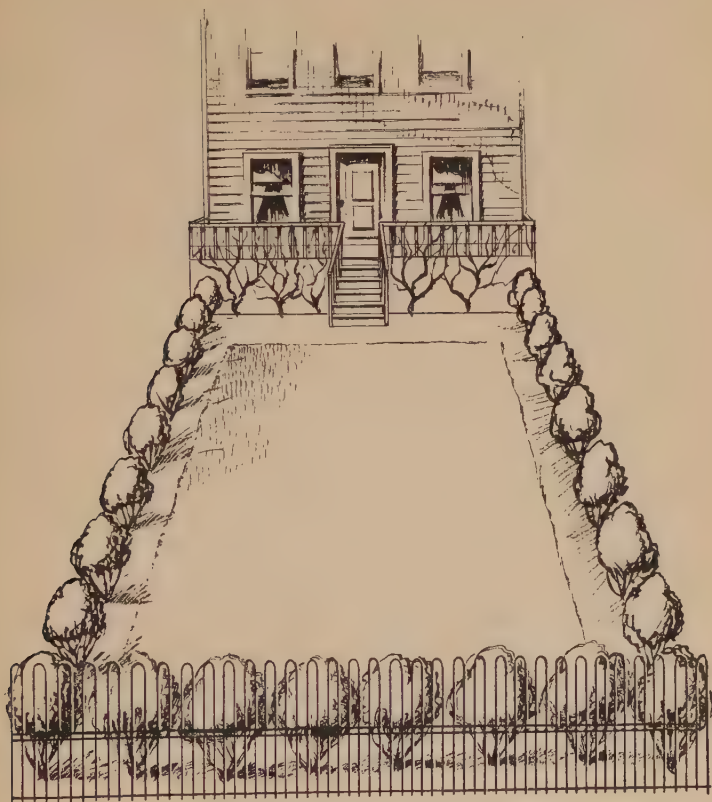


A corner bed for nine plants



A diamond' shaped bed for thirteen plants

Plans of rose beds of various sizes and shapes



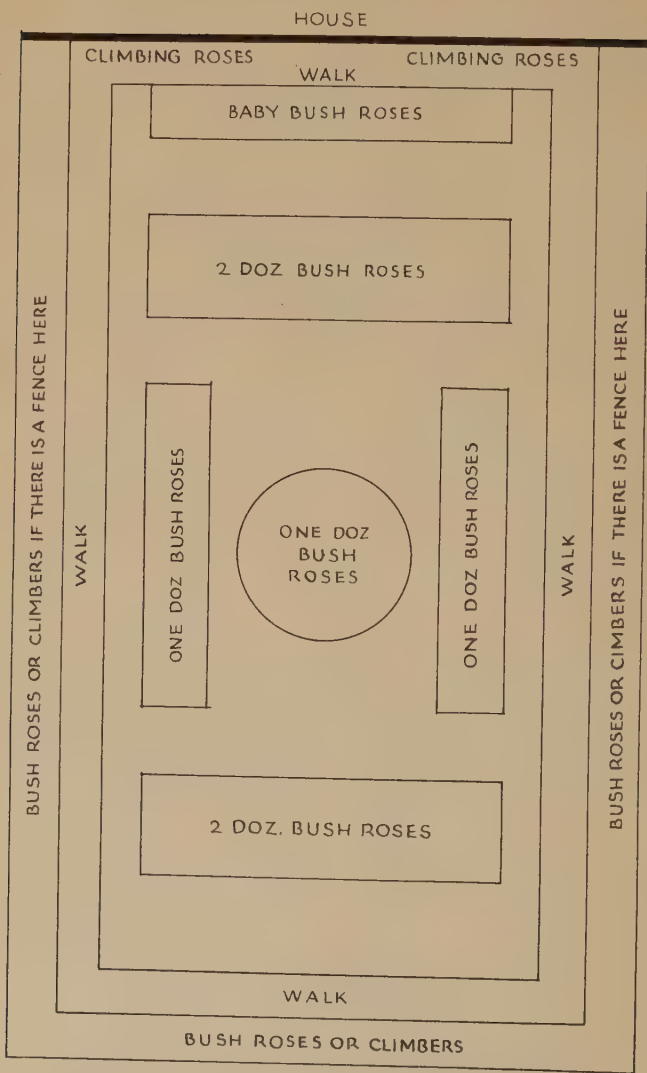
City Backyard

Climbing roses on porch. Bush roses around yard, inside of fence

vent hardening the soil, if it is necessary to walk upon the beds.

The accompanying diagrams show several arrangements that might be made in the average backyard with from one dozen to one hundred plants. It is possible at times to buy fairly good plants from department stores in the cities at a

ROSE GARDEN PRIMER



rather low price; these are bought in quantity from growers. Their one defect is that if kept too long before being sold, the roots dry and the plants suffer, their vitality is impaired and the results obtained will be poor.

Greenhouse Roses for Outdoors

Those who live in towns where there are large greenhouses nearby, devoted to growing roses for the cut flower market, may buy in the Spring discarded greenhouse plants that have been replaced by young stock. In the commercial production of cut roses for forcing Winter flowers, the plants lose some vitality and must be replaced every two or three years, otherwise they become unprofitable. If these are bought at the same price as ordinary bedding plants, they are worth the money, even if they have to be replaced every year, as is done with geraniums. To my certain knowledge, these cast-off plants give great satisfaction and some live for years, and give handsome blooms. These plants give enough blooms the first year to repay their cost, even if they die the next Winter, which is by no means always the case. Such plants must be cut down to within eight inches of the ground before being planted in the garden.

The Best Plants

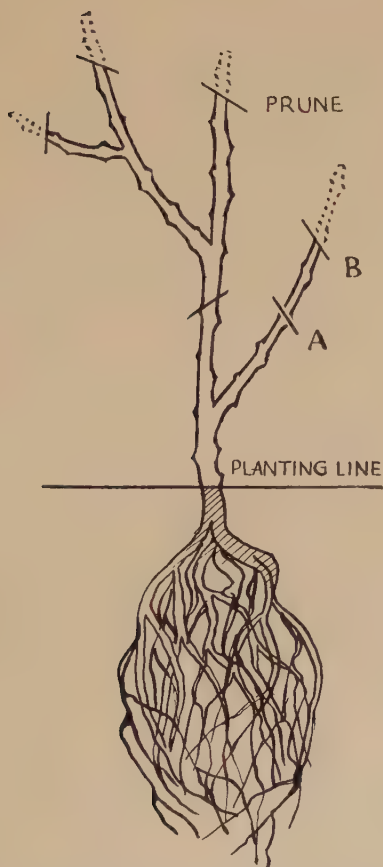
But the very best plants are those bought from a reliable florist, nurseryman or seedsman. These are two-year old budded plants; costing more than the other kind mentioned, but will be longer lived, possess greater vigor and, naturally, will be more likely to give greater satisfaction for permanent plantings. They can also be bought in much greater variety. From some firms it is possible to obtain such plants in pots as late as June, when they are flowering.

Planting Directions

As soon as the plants are received, unpack them and soak the roots in a tub of water for a few hours. If any of the roots are broken, cut them off with a sharp knife above the broken part; cut off the tops to within about eight inches above the place where the shoots branch out from the base of the plant. If there are several strong shoots left, cut out all the small weak ones, otherwise trim the smaller ones back further than the larger ones.

To plant, dig a hole in the prepared ground where the bush is to stand, making this hole rather broad and not too deep, so that the roots will be spread out evenly in every direction. Do not cross the roots or double them under. Set the plant so that when the work is finished and the soil has been finally leveled off, that point where the plant was budded (which is indicated by the knot or bunch, sometimes called the knuckle) which is the junction between the top and the root, will be some two inches under the surface of the ground. When the plant is being set, after the roots are spread out, fill between the roots with fine soil, but do not let any fresh manure come in direct contact with the roots. This, of course, applies to cases where fresh animal manures may have been used.

Press the soil well between the roots to make it firm and then fill in with more loam, treading it down firmly with the feet, leaving a depression on the surface. As soon as all the plants have been set out in this way, water well by pouring in enough to fill each depression, repeating this after the first has drained away. This of course is only necessary if the ground is dry at planting time. After the water has settled away, you may rake over the bed, making the ground level, but leaving a slight depression rather than an incline around



Never plant roses with the roots doubled up like this, but spread them out. When planting, prune to cross lines *A*. In after years prune to lines *B*

each plant. A still, cloudy day is best for planting, but whether windy or sunny, the plants may be kept in a pail of water and each one taken out separately to be planted. On no account should you allow the plants to lie around in sun or wind, as they will dry before being planted and so lose much of their vitality.

After planting, keep the ground hoed or cultivated about the bushes, never allowing it to become hard or baked; this will conserve the moisture, leave the ground cool and keep down the weeds; the few large weeds that may start close to the plants should be pulled out by hand unless they can be reached by the hoe.

Spraying and Dusting

When the plants have started into growth, spray the foliage with a solution of nicotine to kill the green lice or aphids that are apt to appear.

You can buy a preparation in the seed stores called Black Leaf 40; this is extra strong and must be used absolutely according to directions. Dilute this with care and follow the instructions on the bottle. At first, on the soft growth, use it a little weaker than recommended, increasing the strength as the foliage hardens. If the growth is soft and tender, as it may be in the early stages, or during humid, cloudy spells, a solution that is too strong will burn the foliage, but during a period of dry, sunny weather the foliage becomes harder and is less liable to burn.

Powdered white hellebore from the seed store also is good to dust on the foliage in May and June, both on top and underneath the foliage when it is damp. This may be applied with a small dust gun. A liquid spray should be applied with a fine sprayer as a mist, and should never be put on in quantity so that it runs off the leaves and drips to the

ground. To prevent mildew and black spot, a preparation called Massey dust should be dusted over the plant very lightly once every ten days in dry weather, or oftener if it is washed off by rain. If you cannot buy this you can mix flowers of sulphur, finely ground, and dry arsenate of lead, using it in the proportion of nine pounds of the former to one of the latter.

Watering and Protecting

In hot dry weather, during May, June and July, you may water freely, preferably between four and eight p.m. After June, water earlier in the day; after August, do not water, as you want to ripen the wood already made, rather than start new growth which would be soft and liable to winter-kill. The rule is to feed, cultivate and water freely in the early growing season and to let up on this work in the after part of the season. Sheep manure, wood ashes and special fertilizer for rose growing sold in the seed stores, are all good to apply several times during the growing season. Take a handful and scatter on the ground at the base of each bush, raking in well before rains or before watering.

About June 1, a layer of grass clippings or peat moss, one to two inches thick, will maintain the ground cool, keep down weeds and save much labor in hoeing and cultivating.

Cutting the Flowers

During the flowering season, roses for the house should be cut either in the early morning or in the cool of the evening, when about half open, and placed with the stems deeply down in cool water, preferably in a cool room, for a few hours before being arranged in vases in the living rooms; they will be much finer for this treatment and will last longer. By cutting the stems fairly long, the Summer pruning of bush

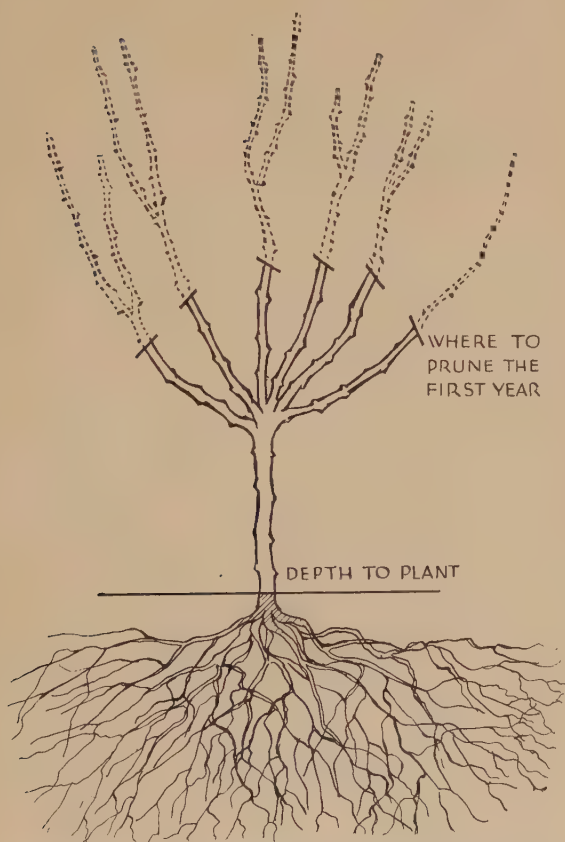
roses is rendered needless. Teas and Hybrid Teas produce flowers on all the new shoots that follow the removal of blooms, but Hybrid Perpetuals, as a rule, give only two crops of flowers, a full one in June and a lighter one toward the Fall.

Many rose shoots are apt to bear several buds on the tip; if you pinch off the smaller ones while they are soft and green, leaving only the large center ones, you will get finer and larger flowers. But in case the main bud has been damaged by insects or from any other cause, remove it and leave one or two of the others. Some varieties of roses produce only one to three buds on the larger and stronger shoots, with one bud on the tips of the smaller shoots, while others have many. If the plants are grown mainly for garden decoration heavy disbudding is undesirable as it naturally curtails the display.

Best Type of Roses to Plant

The three best types of roses for the small garden are the so-called Baby roses, the Hybrid Teas and the hardy climbers. The Baby, Fairy, Pompon or Polyantha roses are generally low bushes, eighteen inches tall; they are noted for an almost constant display of bloom from early Summer until Fall, flowering for a longer period than any other, as a rule. They may be used as a low hedge or as an edging to a bed containing the larger plants, as single specimens, or in a solid bed. Some varieties produce large clusters with over a hundred individual flowers on each cluster; all of this type produce flowers freely and continuously. This class requires little pruning except the removal of dead wood and the old flower stubs at the top of the shoots. The majority of the Baby type of roses are hardy.

The Hybrid Teas comprise the main class and are the aristocrats of the rose garden. These are mostly low bushes



Baby Polyantha Rose grown as a standard. The stem is about two to two and one-half feet long

between eighteen inches and three feet tall. These are the type most in demand and best suited for the average grower. They embrace beautiful colors and shadings, from the roseate hues of early dawn to the crimson of the sunset sky; many have exquisite perfume, from the most delicate tea fragrance to the pronounced odor of the June roses, while most of them have beautiful, lustrous, dark green foliage. They are generally dependably hardy.

The hardy climbers also are offered in great variety and can be successfully grown in any sunny place, on a fence, on the railing of a piazza, or on the side of a house.

All of these three types will succeed in a town lot if they get sunshine for a part of each day and are not in a windy or drafty alley way.

Explaining Various Technical Terms

Soft growth is that which is just unfolding and has not been matured; if there is no sunshine for several days, this new growth becomes very tender and is easily burned and disfigured by too strong an application of insecticide.

An insecticide, as its name implies, is any material such as nicotine, arsenate of lead, or other substance used to kill insects. It is best to spray or dust regularly, and not to use a strong spray on new growth, but to begin with a weak solution and gradually increase to the maximum strength after a few days of sunshine has hardened the growth. Clear sunshine with seasonable temperature produces healthy growth.

A dust gun for blowing on fine powder may be bought from any good seed house, as may also be had any device for spraying liquid, or any other requisite that is needed in rose growing. A pair of sharp pruning shears is better than a knife for cutting away hard wood; there is less danger of cutting the fingers or of scratching the hand when using these than there is if a knife is used, and the work is more easily done.

The knuckle on a rose bush is the place just above the roots where the bud of the so-called tame variety is inserted on to a wild root which is called the understock. This is done because the general run of Hybrid Teas grow stronger on these roots than they do on their own roots.

It should be understood that the term wild stock is a relative one for, as a matter of fact, the understocks are cultivated for this special purpose. *Rosa manetti* is a seedling from *R. chinensis*, as an example.

Suckers are shoots that come up at times from the base of the plants below the knuckle; as these come up from the understock they must be rooted out. Do not cut back but root them out entirely by pushing a large bladed knife down into the ground laterally between the sucker and the main stem of the plant. You can easily tell these suckers by their appearance as they are of a different color from the other shoots; they are also more thorny and they have seven or more leaflets while the budded variety usually has five.

Manuring and Mulching

Fresh animal manure ferments and gives off heat during decomposition and if this comes in contact with the roots of newly planted roses it will burn and injure them seriously; if they do not die outright, they will start very slowly and, in any case, make an unsatisfactory growth.

A mulch is a covering of any loose material spread on the surface of the ground. A dust mulch is simply the top soil that is kept loose by constant stirring with the hoe; where this is properly done in a hot, dry time, it will be like a dry powder on the top, but if you scrape this away with your hand you will find the under soil cool and moist, which is as it should be. This cultivation in addition to conserving the moisture in the soil, also keeps down the weeds, which would

otherwise rob the soil of food and water, harbor insects, and encourage disease.

If you get tired of hoeing in midseason you may use a mulch of some kind; peat moss is perhaps the easiest to obtain and apply. A good brand of peat moss, thoroughly moistened and reduced to a fine consistency, will prove a valuable conserver of moisture. Spread it two inches thick at least, and let it cover twelve inches all around from the main stem.

Pruning is the cutting away of dead wood and of the small, weak shoots and the trimming or shortening of the strong shoots, and is done to keep the plants in shape and to promote growth. Among the Hybrid Teas, this is usually done in the Spring, just before the growth starts. But do not cut away all the previous season's wood at pruning time; you will recognize it because it is smoother and lighter in color than the older wood, also fresher and plumper in appearance. Cut away the shoots to a strong outside bud, about half an inch above the bud. The reason that an outside bud is left on the top is to cause the plant to grow openly to admit the sun and air and make a bush of much better shape than if the inside were crowded. The small inside shoots that crowd or cross over each other are to be cut out altogether.

Pruning

The hardy climbers should not be pruned in the Spring; if then pruned you will get no flowers. Prune these as soon as they have flowered by cutting away the old canes altogether. Tie up the new shoots that have come up from the bottom so that they may grow and ripen their wood, from which new shoots will appear the next season and produce the flowers for that year. All growth is ripened in the late Summer and

Fall and should be tied up so that it gets the full sun and air. This wood will not winterkill the way that soft or immature wood does in a hard Winter. A light pruning of the bush roses in the early Summer by removing any weak or misplaced shoots in the middle of the plant will benefit the good growth by opening it up to the sun and air. But this is only necessary if the plants have not been utilized for cut flowers.

Winter Protection

Winter protection of the Hybrid Teas and other small bush roses is best obtained by hilling up each plant to a depth of eight inches above the ground with ordinary garden "loam," which is another name for soil or earth. This is done just before the ground freezes hard enough to make this impossible which, over much of the country, occurs in November. This is usually all the protection required. For use on small beds, where the plants are set out close together, this soil should be obtained from some other part of the garden, as to dig it out from between the plants might injure the roots. In larger beds, with a wider space between the rows, the soil between the rows is dug out and used for banking in the plants.

On Buying Stock

In reading advertisements of roses for sale from pots you must realize that small plants from two and a half inch pots are of little use to you. While these have their place you had better pay more and get large plants from five and a half or six inch pots; these will give you good results the first Summer and are better for later planting than the field grown dormant plants mentioned previously. A dormant plant, by the way, is one without leaves that usually must be started in cool weather to make new roots, and then the buds swell

and finally break into leaf, as do all hardy trees and shrubs in the Spring.

A pot grown rose comes to you in full leaf, often with buds developed and will give you flowers in a few weeks after planting; these, of course, cost more as they are grown especially for this class of trade and take more time to prepare. All values are relative; some pot grown plants may be inferior to some field grown plants. Your best plan is to go to a reliable dealer, stating the purpose for which the plants are wanted. If you receive rose plants in paper pots soak them in water before taking them out of the pot.

Flower pots are measured from the inside, and so a six-inch standard pot measures six inches across the inside and six inches from the bottom to the top inside; remember this if you buy plants in pots or if you use a flower pot to measure out any fertilizer.

After you have prepared your bed, mixed in manure and planted as advised, you should not apply more fertilizer until the growth has started. The richer you make the ground at the start the less feeding will be required in the shape of top dressing during the first growing season.

Making a Rose Bed

In making a bed in which to plant roses remember that if you have room to work from both sides of the bed, you can make it a little wider than if you can only work from one side; in this case three feet is wide enough for the rose border. The reason for these distances is so that you can easily reach over a narrow border to give the plants individual attention, and cut your flowers without breaking or injuring either flowers or bushes. With a narrow border, too, it is possible to work among the plants without treading down the soil into a solid mass which will bake in the sun and become hard

and dry; this condition is bad and, when it exists, the ground should be carefully broken up by digging down to a depth of six inches, preferably using a spading or a manure fork. Be careful not to dig up any roots; if any should become exposed scrape away the loose soil, lay the root out naturally on the ground, cover it with fresh loam and press it down, afterward raking over the whole mass and leaving the soil light on the top. A spade is a poor tool for this purpose as the inexperienced worker is liable to cut off some roots when digging near the bushes. After the soil has been well loosened in this manner, and before it receives its final leveling, is a good time to sprinkle a handful of fertilizer at the base of each bush.



Chapter XVI

Roses for the Small Garden

A Selection of 12, 25, and 50 Roses

The question has often been asked as to which are the best dozen roses to plant by those who have room for only one dozen, or who, for various reasons, wish to limit themselves to that number at the start. This would be difficult to answer unless it was definitely stated whether the individual had a choice of colors in mind. Let us suppose that the inquirer desired his dozen to consist of four pink, three red, three multi-colored, or roses with various shadings, one white and one yellow, the following would be a good selection; For pink, Radiance, Souv. de Georges Pernet, Queen of Fragrance, Lady Ashtown. Red—Etoile de Hollande, Gruss an Teplitz, Red Radiance. Various shades—Madame Butterfly, Willowmere, Rev. F. Page-Roberts. White—Mme. Jules Bouche. Yellow—Lady Margaret Stewart. To extend this list to twenty-five, add: Pink—Mrs. Charles Bell, Mrs. Henry Bowles, Dame Edith Helen, Caroline Testout, Rapture. Red—Lord Charlemont, Patience, General MacArthur. Multicolored—Betty Uprichard, Mme. Edouard Herriot, Mrs. Aaron Ward. White—Marcia Stanhope. Yellow—Ville de Paris or Mme. Julia Potin. For fifty roses, add: Pink—Pink Pearl, Elsie Beckwith, Briarcliff, Una Wallace, Rose Marie, Lady Alice Stanley, John Cook, Columbia, Lady Dixon Hartland, Miss Rowena Thom.

**Aviateur Bleriot**

Very pretty light yellow medium sized flowers, freely produced; good as climber or as a ground cover in a sunny location. The foliage is fine

Red—Bloomfield Progress, Royal Red, George Dixon, Admiral Ward, Hoosier Beauty, Margaret McGredy. Multicolored—William Kordes, Talisman, Angele Pernet, Imperial Potentate, Los Angeles. White—Florence Pemberton, Double White Killarney. Yellow—Eldorado, Golden Emblem.

These are all Hybrid Teas or constant bloomers and do not include the Hybrid Perpetuals or June roses, as these can only be depended on for one crop, though most varieties will give a few flowers toward Fall.

If the beginner wishes to start with one hundred plants he may refer to the lists of good roses given elsewhere in this book or consult catalogs of responsible firms and make his own selection as to colors wanted. All of them are good and it is often a question of individual choice. You should include a dozen or so of the Baby Polyanthas in this list and the best of these are Gruss an Aachen, varicolored, strong grower, good foliage, constant bloomer; Orleans geranium red with white center; Golden Salmon, golden orange; George Elger, yellow; Mme. Cecile Brunner, pink; Baby Tausendschön, rose pink; Echo, light pink, Perle Orleanaise, bright salmon pink.

For those who have room for but a few hardy climbers there is the choice between the very fine double varieties of easy, rampant growth, such as Dorothy Perkins, pink; White Dorothy Perkins, and Excelsa, sometimes called the red Dorothy Perkins. These make a bold display for several weeks in the Summer and have fine foliage. If grown on a fence or used as pillars out in the open, or on a trellis where they get the air, they are not so likely to become mildewed as if they were on the side of the house.

Few people realize the discomforts plants are subjected to in the broiling sun, on the side of a building, in mid-Summer.

**Etoile de Hollande**

Hybrid Tea Rose of a rich scarlet red, with a satiny sheen and the perfume of the old-time roses. Rather slow to become established, the flowers are alike beautiful in the garden, or when used as cut blooms. Some of the very finest blooms are produced in the Fall

The varieties above mentioned are of the class that should have the old canes cut out after flowering and the new canes encouraged. Then there is the semi-double type of which Dr. Van Fleet is the best type. This is a beautiful, soft, pink rose and should not be pruned much. If this rose is left to grow naturally, simply cutting out any dead wood, keeping it tied up in shape and pruning only enough to keep it within bounds, it will flower abundantly and be much admired. Another rose that requires little pruning is Paul's Scarlet Climber, which is also admirable.

There are many beautiful climbing roses that are fine where there is room for them. American Pillar is a marvel, with prominent single flowers and large, glossy, dark green foliage. Other good pink climbers are Alida Lovett, Christine Wright and Tausendschön. A fine single, pink climber is Evangeline and a single red is Hiawatha. For reds, Flower of Fairfield, Bess Lovett and Paul's Scarlet are fine. For yellows, Aviateur Bleriot, Gardenia, Goldfinch, or Emily Gray are all good; the latter is beautiful but rather tender and requires some protection in Winter. For other roses of all descriptions consult a good catalog from some reliable dealer.



Chapter XVII

Questions and Answers

What do you mean by a root cutting ?

Ans: Some varieties of roses, notably Rugosa, will form new plants from pieces of old roots left in the ground after a large bush has been dug up. This variety, as well as some of the old-fashioned hardy roses, may be increased by taking a piece of the old root, a few inches long and not less than an eighth of an inch thick, and laying it horizontally in the ground outdoors; or if to be grown indoors, in boxes of loam, covering them with more loam when they will root and throw up a shoot which will eventually develop into a new plant.

What are own root roses ?

Ans: Those that are raised from slips or cuttings the way you root Geraniums or Coleus and similar plants.

Of what use are these ?

Ans: The hardy climbing roses are nearly all grown in this way; some of the Hybrid Teas are rooted like this and grown on their own roots. These are good in some of the warm states but of little use in colder sections.

Where can we buy the best roses ?

Ans: From a good nurseryman. The best to buy are two-year-old budded stock; three-year-old plants would be stronger and cost more. Such plants if properly planted and well cared for will live many years.

Which roses have the longest life ?

Ans: The Hybrid Perpetuals will live longer than the Hybrid Teas.

Why plant roses in the Fall ?

Ans: There is more time in the Fall to prepare the ground than there is in the Spring, and there is generally a better selection to choose from. The plants are freshly dug and are in good condition, and form new roots before the ground freezes, therefore, are that much ahead in the Spring.

Can we plant all roses in the Fall ?

Ans: Tender varieties should not be planted in Fall except in the warm states; neither should the tree roses or standards, as they are called. The heads of these winter-kill unless they are protected.

How shall I prune my yellow roses, like Hugonis, Austrian Copper and Persian Yellow ?

Ans: Do not prune these at all except to take out dead wood. Or after they have flowered in the Spring, you can shorten the tips a little to shape them up if necessary. The new growth then made will flower the next Spring.

Will roses grow in a backyard ?

Ans: Yes, if you dig up the ground and enrich it and if it gets sunshine for half of every day.

I received twelve rose bushes that were dried up; nine of them died. What should I have done ?

Ans: A dry rose is half dead. You should have soaked them overnight in a tub of water and then have buried them bodily in moist loam soil for several days. Afterward, on a cloudy, still day if possible, uncover them one at a time, prune off any broken roots, cut off the tops to within six inches of the bottom and plant them carefully.



Rev. F. Page-Roberts

A beautifully formed flower of a changeable color. One of the newer varieties that is distinct, good and popular

Will roses grow in a city ?

Ans: A friend of mine in New York City has a nice collection of roses in his garden, and has had very fine success with them.

What about Winter protection ?

Ans: Too much is worse than too little unless it is properly put on. If hilled up with earth before the ground freezes solid and a few pine boughs are stuck in the soil among the plants to shade from the Winter sun they will Winter well. They should have air circulation and should not be buried under a wet blanket.

What are the best roses for a small garden ?

Ans: The Hybrid Teas and the Baby Polyanthas; these do not require much room and flower all Summer.

How shall I prepare the soil ?

Ans: Dig it over deeply and work in plenty of well rotted manure. Make the soil as rich as you would for any garden crop. Break up the hard pan so that the drainage will be good. No special pains are needed for ordinary culture; good commonsense methods will suffice.

Are all nurserymen reliable ?

Ans: Just as much so as all grocerymen or other types of merchants. The only way to find that out is by experience.

Can I grow roses without animal manures ?

Ans: Yes; some growers report good results with bone-meal, dried blood or other such fertilizers.

Is peat moss a good material to mulch roses with ?

Ans: One of the best that you can use. It keeps the ground cool and moist in hot weather and holds down the weeds.

How can I prolong the June flowering of the Hybrid Teas?

Ans: Cut off half the shoots when the buds are formed by taking off one-third of their length; new shoots will start out from these and will flower a few weeks after the ones that you left on; the ones flowering first will have longer stems and the same will be true of the after blooms.

Is it possible to over-water roses outdoors?

Ans: Hardly, in hot dry weather, if the drainage is good; do not water at night in cold weather. Water early in the season to promote a good growth.

What are leaflets?

Ans: Individual leaves; each leaf stalk growing out from the stem of a rose plant has several leaves attached, usually five.

What are the eyes on a rose bush?

Ans: The buds which are still dormant, from which a new shoot will come.

What is a knuckle?

Ans: A slight swelling like a knuckle joint between the roots and the shoots of a rose bush, which indicates the place where it was budded.

What are Hybrid Perpetuals?

Ans: The hardy garden roses that flower very freely in June, often called June Roses.

What are Hybrid Teas?

Ans: These are more tender, having more of the Tea rose strain in them. See chapter "The Origin of Our Roses."

What is wood ?

Ans: This is a general term for shoots of shrubby plants; all growth except the leaves is wood, tender young shoots are soft wood, old shoots that have been exposed to the hot sun and the cold winds is hard, or ripened wood. Dead wood is what the name implies and should always be cut away.

What is growing out of bounds ?

Ans: Growing too large for the situation in which they are planted.

What are hips ?

Ans: The seed pods that you see at the end of the Summer on the wild roses. Occasionally, one will be found in the garden where a flower was not cut.

What is the neck of a flower ?

Ans: Exactly what its name implies. The portion of the stem just below the flower.

What is meant by coming back ?

Ans: Making a new growth with more flowers after a crop has been cut off.

What are understocks ?

Ans: The plants that the garden varieties are budded upon.

What is Manetti ?

Ans: A seedling of *Rosa chinensis* that is largely used as an understock.

What is Multiflora ?

Ans: A species of Rose, the Japanese variety of which is also often used as an understock.

What is suckering ?

Ans: When shoots grow out of the ground at a little distance from the parent plant, they are usually suckers coming from the stock on which the plant was budded.

Can such suckering be prevented ?

Ans: Yes, by carefully cutting out the eyes or buds below the place where the bud of the desired variety is inserted.

What is meant by a bud having broken ?

Ans: Having started to grow out; the opposite of a dormant bud.

What is a heel cutting ?

Ans: One taken off at a joint with a portion of the parent stem attached to its base.

What is a joint ?

Ans: The point from where the leaf stalk starts. Between these joints the stem is smooth.

What is nitrogen ?

Ans: This is necessary to plant growth and exists in various forms; as organic nitrogen in manure and green vegetable matter; as ammonia salts, and as nitrates and nitrites.

What is nitrification ?

Ans: The conversion of the nitrogen in the soil by ferments, into nitric acid.

What is organic matter ?

Ans: Manure and vegetable matter which decays and adds humus to the soil.

What is inorganic matter ?

Ans: In general, the term is usually applied to fertilizers composed of rocks, minerals or chemical compounds.

What is an insecticide ?

Ans: Any preparation used for killing insects.

What is a fungicide ?

Ans: Fungicide is used to prevent the spores of fungus diseases entering the structure of plant foliage, and also to kill such spores.

What is a dust gun ?

Ans: A bellows or syringe-like implement for blowing on powder to kill insects or disease.

What is the best label to use ?

Ans: There are various kinds. Indestructible copper labels are the best. Examples of the various patterns are illustrated in most seed catalogs. For the beginner with a few bushes, small wooden labels painted white on one side for writing on with a lead pencil will suffice, or a composition like celluloid label is used. The latter cost a little more and last longer. These may be bought in the seed stores and are attached with fine wire. The wire should be left loose so as not to cut the stem of the bush.

How shall I tie my Roses ?

Ans: Tie only for support and to prevent chafing when blown by the wind. Tie knots that will not slip, but do not tie so tightly as to cut into the bark.

What is meant by hardening off Rose plants ?

Ans: This applies to plants purchased in pots when in full leaf or flower, and mean gradually exposing them to lower temperatures and protecting from cold winds or frost until they are acclimated.

How much manure water should I give my plants?

Ans: A pailful weekly to each plant for four to six weeks in the early growing season, up to time the flower buds show color.

Is it necessary to prepare the soil as some advise?

Ans: No, but better results are always obtained after careful preparation.

What is the best soil for Roses?

Ans: Good, heavy natural loam. A mixture of clayey loam with light gravelly loam will give good results. See chapter on Soil Preparation.

Should the suckers from own root Roses be removed?

Ans: No. When these are about 2 ft. tall, pinch off the top six ins. which will make them branch out and give a number of flowers.

What are the chief distinctions between Hybrid Perpetuals and Hybrid Teas?

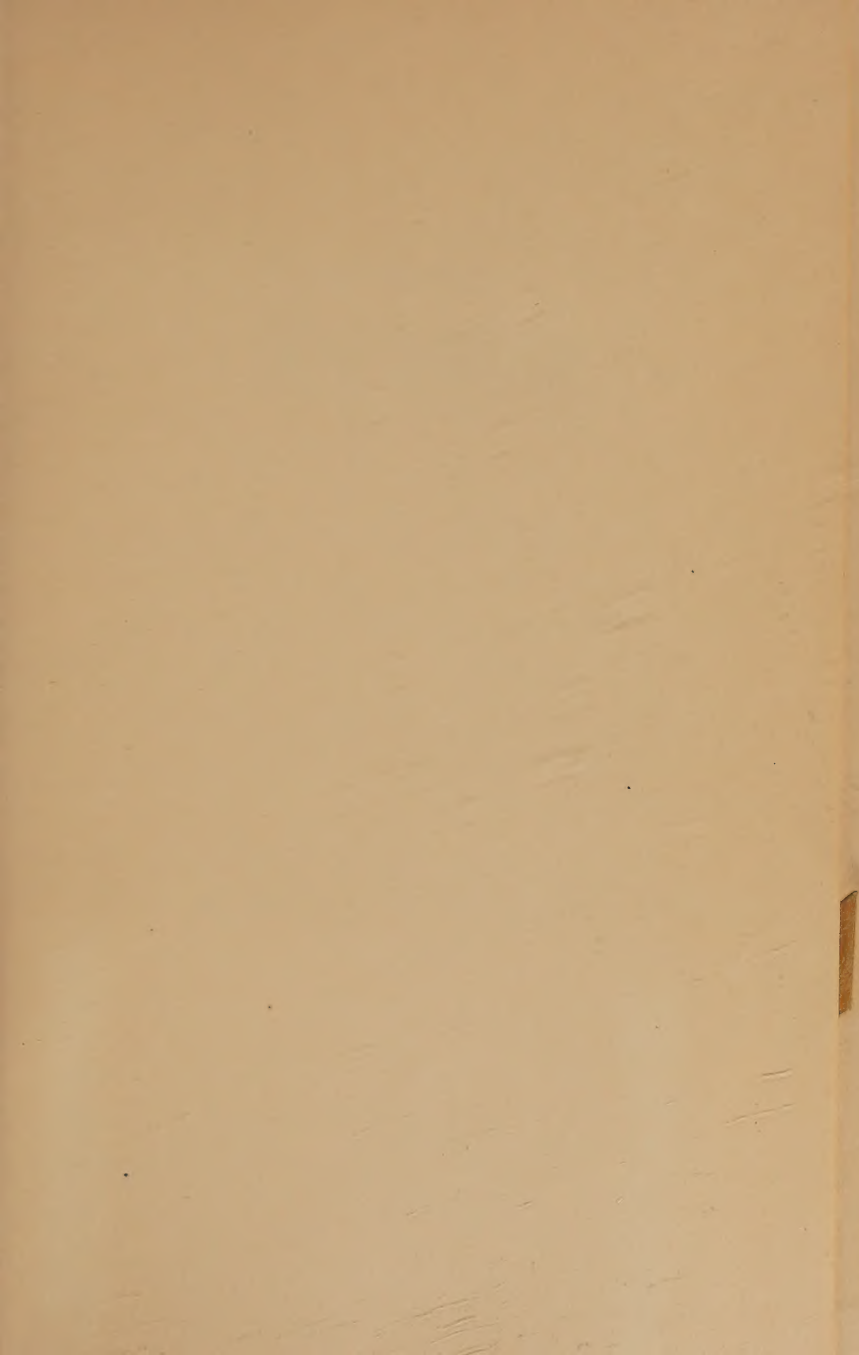
Ans: The former have flatter buds and flowers, the flowers are more double and are produced mostly in June. Although few flowers come later, some sorts average rather more flowers per year than the Hybrid Teas. They are invariably more hardy, and while the flowers have not the scent of the Tea Roses, they mostly have an abundant fragrance of their own. The Hybrid Teas are less hardy, the flowers are farther spread over the season, too, the colors are more varied and beautiful. The flower buds are more pointed and the flowers usually less double, with a pronounced tea odor. The young foliage and young shoots show brown and red tints, but most varieties have fine dark green foliage when matured. A few develop fine Autumn tinted foliage toward the end of the season.

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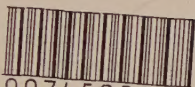


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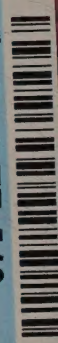
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